

AMIGA USER

INTERNATIONAL

£1.95

FEBRUARY 1991

AMIGAVISION

You can be a Multimedia producer!

PIXEL 3D

Special Effects with Pixel 3D

The New ProWrite V3.0

Do it faster with Blitz Basic

Sort out your finances with PFM

Stunning kids stuff with My Paint

Professional printing with the HP Deskjet 500

plus Two-Way Television. How to Be An Amiga Artist,

Printapen 5000 and Carv--Up, Carthage, Power-Monger, Strider II, Indy 500, Last Nija Remix, Toyota GT Rally, AMOS Games Special

FREE

See music competition inside **AUI**

GROOVES

AUI's Exclusive Guide to Music

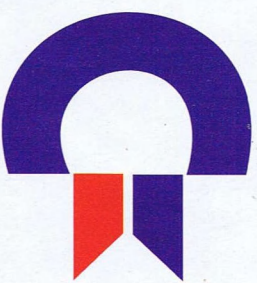
Everything you ever wanted to know about music on the Amiga and no-one else would tell

No Free
AUI "GROOVES"
Guide to Music?
Ask your
Newsagent
Why!

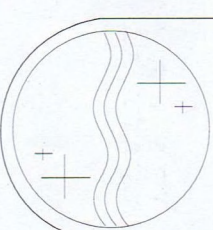
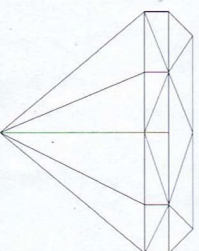


No. 1 For

No. 1 For



DIAMOND



PHILIPS

COMPUTERS

PACK

AMIGA 500 Screen Gems Pack
INCORPORATING

- * 512K RAM
- * 1Mb Disk Drive
- * 4096 Colours
- * Multi Tasking
- * Operating System
- * Mouse
- * Dust Cover
- * Joystick
- * Disk Storage Box
- * Two Manuals
- * Deluxe Paint II
- * All Appropriate Cables
- * Built-in Speech Synthesis
- * Mouse mat
- * 10 Blank Disks

* 15 GAMES *

Night Breed, *Back to the Future 2*, Days of Thunder, *Shadow of the Beast 2*, Chess Player 2150, *Datastorm*, Dungeon Quest, E-Motion, *Grand Monster Slam*, Kid Gloves, Rick Dangerous, *RVF Honda*, Shufflepuck Cafe, Soccer.

AND A CHOICE OF

Teenage Mutant Turtles OR RoboCop 2
OR Lemmings OR Powermonger

£399.00 INC VAT

SAVE OVER **£300.00**

PACK

AMIGA 500 Screen Gems Pack
INCORPORATING

- * 512K RAM
- * 1Mb Disk Drive
- * 4096 Colours
- * Multi Tasking
- * Operating System
- * Mouse
- * Dust Cover
- * Joystick
- * Disk Storage Box
- * Two Manuals
- * Deluxe Paint II
- * All Appropriate Cables
- * Built-in Speech Synthesis
- * Mouse mat
- * 10 Blank Disks

* 18 GAMES *

Night Breed, *Back to the Future 2*, Days of Thunder, *Shadow of the Beast 2*, Chess Player 2150, *Datastorm*, Dungeon Quest, E-Motion, *Grand Monster Slam*, Kid Gloves, Rick Dangerous, *RVF Honda*, Shufflepuck Cafe, Soccer.

AND THE HOLLYWOOD PACK

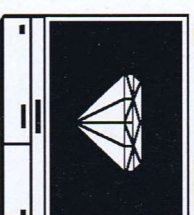
Ghostbusters II, *Indiana Jones*, RoboCop
AND Batman

£399.00 INC VAT

SAVE OVER **£300.00**

PACK

DIAMOND PACK 1
OR
DIAMOND PACK 2
&



Philips 8833 MkII

Stereo Monitor

1 YEAR ON SITE GUARANTEE

U.K. MONITOR

Free 512K RAM Board

£629.00 INC VAT

SAVE OVER **£400.00**

PACK

AMIGA 500
Screen Gems
&
Hollywood Pack

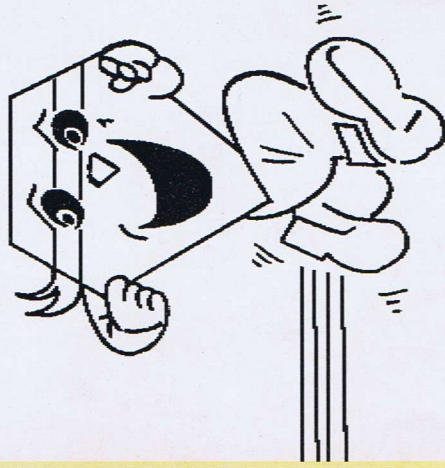
* 8 GAMES *

Night Breed, *Back To The Future 2*, Days Of Thunder, *Shadow Of The Beast 2*
Ghostbusters 2, *Indiana Jones*, RoboCop
and Batman.

£369.00 INC VAT

SAVE OVER **£60.00**

SECURE YOUR CHILD'S FUTURE WITH A DIAMOND EDUCATION PACK



**RUNAWAY
PRICES
FROM THOSE
DIAMOND
DEALERS**





PACK

CLASS OF 90'S FIRST STEPS

**ALTERNATIVE EDUCATION
PACK**

FROM DIAMOND COMPUTERS

- * AMIGA500
- * 512K RAM Board
- * Mouse Mat
- * Dust Cover
- * KindWords
- * Funschool

And a choice of educational software selected from any of our showrooms to a value of £75.00

£529.00 INC VAT

- * 512K RAM Board
- * External Drive
- * 10 Blank Disks


£89.95 INC VAT


- * A590 Plus 2Mb RAM
- * 20 31/2" Disks
- * 80 Capacity Disk Storage Box


£339.00 INC VAT


NEW STAR LC 24/200 Colour Printer


£275.00 INC VAT


 Diamond Computers Ltd
84 Lodge Road
SOUTHAMPTON
TEL 0703 232777
FAX 0703 232679


 Diamond Computers Ltd
406 Ashly Road
POOLE - Dorset
TEL 0202 716226
FAX

 Diamond Computers Ltd
227 Filton Avenue
Bristol
TEL 0272 693545
FAX 0272 693223

 LAN Computer Systems
1045 High Road
Chadwell Heath - Romford
TEL 081 597 8851
FAX 081 590 8959

 LHC Microsales
121 Regents Street
Leamington Spa - Warks
TEL 0926 312155
FAX 0926 883432

 Diamond Computers Ltd
Ballina - County Clare
Southern Ireland
TEL 061 376744
FAX 061 376740

 Diamond Computers Ltd
1022 Stockport Road
Manchester
TEL 061 257 3999
FAX 061 257 3997

EXPORT HOTLINE
TEL 0272 693545

AMIGA USER

INTERNATIONAL

Contents

Volume 5 No.2 February 1991

CONSTANT FACTORS

- 5** *The Amiga Dimension*, Antony Jacobson explains why he thinks there is a common denominator – intelligence – among AUI readers.
- 6** *Newsfile*: More than just news, views, and products. 8 pages of the latest in where the leading edge of technological advancement is cutting next.
- 117** *Amiga Answers*: Andy Eskelson offers the advice you need on technical issues.
- 119** *Write to Reply*: Bud Vennos hosts the show where you and all Amiga users are invited to speak your angry – or happy – minds.

MENTOR

- 45** *Improving on P.D.*: This month Peter Wright gets down to business.
- 94** *AUI Spell Checker*: Part 2 of this DIY project from Paul Overaa.
- 34** *How To Be An Amiga Artist*: In part 2 Peter Lee focuses on techniques for text effects and surfaces.
- 109** *C++*: John Kennedy points out that even C can be improved.

HARD COPY

- 40** *Great Ideas in Computer Science*: They are happening says Daphne Moss.
- 54** *Computers in a Human Context*: Is there such a thing? asks Daphne Moss.
- 56** *Amiga Printers Inside & Out*: For those with trouble or wishing to get the most out of their peripheral as Andy Eskelson discovers.

TEST DRIVE

- 20** *Prowrite*: The latest version of Prowrite is test driven by John Walker
- 24** *Printapen 5000*: Pat Kelly tries out portable printing with this handheld ink-jet printer.
- 28** *My Paint*: Martin Witton finds six-year-old Nichola enjoys this educational paint program.
- 30** *Blitz Basic*: Basics are becoming faster and more refined as Mike Nelson finds out.
- 32** *Mouse Attack*: Are replacement mice any better than the standard Amiga rodent? Pat Kelly investigates two contenders.
- 50** *Amigavision*: Commodore have bundled this authoring system with the A3000. Alan Puzey looks closely into its capabilities.

- 61** *Personal Finance Manager*: Will Bob Collyer now make his bank manager happy.
- 64** *Professional Pages*: The Hewlett Packard Deskjet 500 is given the once – and twice – over by Mark Smiddy.
- 66** *Pixel 3-D* Barry McCarthy is impressed with this rendering package.
- 100** *Learn to Read*: more entertaining kids with Mark Rose

FIELD REPORTS

- 102** *Focussing On The Future*: Oxixi's John Houston tells Joe Gene Harris about the future, and what it means for the Amiga.

USER PORT

- 38** *Two Way Television*: John Kennedy explains the technology of personally achievable visual communications.
- 112** *Now The Turkey's Gone*: Mike Nelson tells you how to spend your extra Christmas cash – if you have any!
- 113** *Music Competition*: Read the supplement? Now WIN the musical applications to feed your new-found talents.

SPECIAL OFFERS

- 36** *My Paint*: Exclusive offer to Amiga Users is this fun educational program from Prism.
- 60** *Phillips CM8833 Mk. II Monitor Offer*: You can dazzle your friends - but not yourself.
- 105** *Subscriptions*: Get AUI through the post and save on shoe wear at no extra cost!

ENTERTAINMENT

- 68** *Core's Carv-Up*
- 70** *Electronic Art's Powermonger*
- 76** *Psygnosis' Carthage*
- 78** *Merit's Operation Com-Bat* (Sorry about last month)
- 79** *Gremlin's Toyota Celica GT Rally*
- 80** *US Gold's Strider II*
- 82** *Electronic Arts Indy 500*
- 84** *Digital Integration ATF*
- 86** *Short Reports – Hostages • Maya • The Ultimate Ride • Damocles Mission Disk 1 • Finale • S.T.U.N. Runner • Cosmic Pirate • Rotor*
- 88** *System 3's Last Ninja Remix*
- 90** *Adventure Now – with Andy Moss*
- 92** *Infogrames' Murder In Space*
- 93** *Charts*
- 114** *AMOS Special*

AMIGA USER INTERNATIONAL

Managing Editor and
Publishing Director
Antony Jacobson

Staff Writer
Tony Horgan

Editorial Co-ordinator
Pat Kelly

Group Advertisement
Manager
Richard Vaughan

Assistant Advertisement
Manager
Tony Pelham

Consultant Art Editor
Graham Baldock

Managing Director
Peter Welham

Contributor List

Bob Collier, Andy Eskolson,
John Kennedy, Peter Lee,
Barry McCarthy, Daphne
Moss, Andy Moss, Mike
Nelson, Paul Overra, Alan
Puzie, Mark Rose, Mark
Smiddy, Bud Vennos, John
Walker, Mark Witton, Peter
Wright.

Editorial

Telephone 071-278 0333
extn 313
Advertising Telephone
071-490-7161

Published by
Maxwell Specialist Magazines
Finsbury Business Centre
40 Bowling Green Lane
London EC1R 0NE

Distributed by Comag,
Tavistock Road, West Drayton,
Middx UB7 7QE

Typesetting & Origination by
Ford Graphics Ltd,
Fordingbridge, Hants

Printed by
Chase Web Offset
St. Austell. A St. Ives
Company

Amiga User International - an independant
magazine for Commodore computer users - is
not connected in any way with Commodore
Business Machines UK. It is published 12 times
per year by Maxwell Specialist Magazines. The
publishers do not accept any liability for any
incorrect statement or errors contained in material
from independant sources or authors which may
be reproduced from time to time.

© Maxwell Specialist Magazines

THE AMIGA DIMENSION

Dear AUI Reader,

In this issue, we include W/P, programming, paint and titling programs for children and adults, hand printing, mice, a music supplement and a report of data passing at 24 gigabytes a second. We also have games, adventure and arcade, and, in the classic publishing phrase, "much much more".

With this variety, it is not surprising that occasionally people wonder what kind of magazine **AUI** is. We get accused of including too many shoot 'em ups for a serious publication and of being too serious and not having enough games!

What few will deny, however, is that the varied, and sometimes rather odd, mixture we provide has given **AUI** a unique personality - which may not, indeed, be to everyone's taste.

In computer publishing, there is, it seems to me, too little individual personality in and difference between magazines. Too many publications resemble each other closely - in fact are almost clones. Often, they are little more than games reviews piled on games reviews only separated by advertisements. That cloning is a pity because a computer such as the Amiga offers a user far more than than a single relatively passive role - as should a magazine, at least one with an intelligent readership.

At **AUI**, in the mixture, we attempt to maintain a balance between many contrasts: between reviews and original material, between entertainment and instruction, between specific Amiga concerns and the wider world, between constant factors and the unexpected, between the expert and the novice, the power user and the Amiga owner with small means (but possibly big ideas), between the technofreak and the games player, the experienced programmer and the aspiring Basic learner and "many many more".

Aspiration often has a lot to do with the reason people buy computers and how a user approaches it. He or - unfortunately less often, she - wants to move forward into

greater, more practised and more enjoyable domination of the technology. And, we have found, frequently likes reading about things that he/she may never even get to experience. **AUI** tries to satisfy that aspirational desire and also that natural curiosity.

AUI's News section also arouses comment. Why does does an Amiga specific magazine publish material not specific to the Amiga? No, it isn't just MSDOS which is appropriate now. We consider that **AUI** readers, whatever their many differences, tend to have intelligent enquiring minds. You are not, we believe, zombies interested only in the Amiga or even in only one section of it but want to understand where the relevant technology is heading and what it means to you and our world.

The Amiga was - and still is - a leading edge machine. Our view, at **AUI**, is that people who use it are able and very willing to take an interest in and even make an effort towards improving their comprehension not only of the Amiga itself but of its whole environment. Such an understanding may help you to make rational choices in a complex and often seemingly irrational world. Our News section, we hope, reflects this.

Even from the early days as the first Amiga magazine on this side of the Atlantic, we have believed we should respect the intelligence of our readers. Now that there are so many more Amigas around, some being treated as not much more than games consoles, we are sometimes advised to change the format and follow the notorious publishing maxim "You never go broke underestimating the intelligence of the reading public!" We don't intend to go that way. And in our third year as a monthly publication, as the number of **AUI** readers goes on increasing, it seems that the wide range of interests we cover must be pleasing a growing proportion of you who make up the Amiga Dimension. If what we provide isn't always to your particular taste, I would be glad to know why. As they also say in publishing, "The buck stops at the Editor".

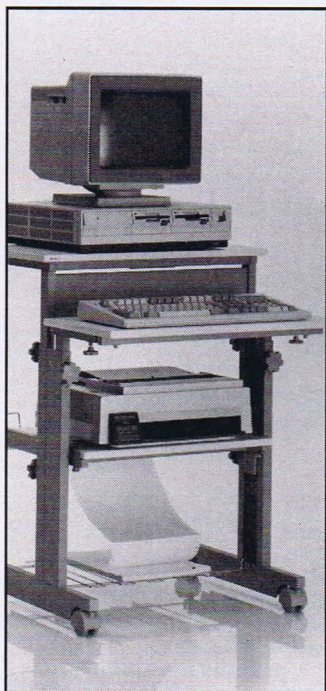
Antony Jacobson
Managing Editor

ADVERTISERS DIRECTORY (AMIGA USER INTERNATIONAL) FEBRUARY 1991

16 Bit Centre	58
Ace Repairs	111
Adamsoft	85
ARK	116
Bitcom Devices	108,109
Blitterchips	116
Byteback	13
Calco	85
Checkmate Systems	49
Color Vision	97
Commodore NTL Repairs	121
Computerlab	65
CYB	116
Datel Electronics	41-44
Delta PI	97
Diamond Computers	IFC,3,26,2
Digicom	106
Enchantment Software	104
ESP	23
First Choice Computers	99
G.T.I.	69
Harwood Computers	72-75
Hisoft	12
Hobbyte	19
Homebased Business	111
Instamec	111
Intraset	29
Kadsoft	97
Kosmos	111
Kyocera	10,11
Magnetic Media	111
Marcam	52
Memory Expansions	55,59
Microtec	33
Newtek	OBC
Nurd Software	89
Omega Projects	69
Pazaz!	93
Premier Software	105
Rombo	IBC
Silica Shop	25
Siren Software	122
Soft Exchange	116
Softville PD	23
Solid State	9
Start Computers	65
Syntronix Systems	89
The Amiga User Group	111
Third Coast Tech	57
Triangle T.V.	104
Voltmace	104
Wizard Software	104
WTS	81

Whilst all reasonable precaution is taken to ensure advertisers are bona fide, Maxwell Consumer Magazines takes no responsibility for any misrepresentation or inaccuracies in advertisements or for any breaches of obligations by advertisers. Readers are recommended to take appropriate professional advice before entering into obligations.

VARIABLE-HEIGHT WORKSTATIONS



SIS and Esselte adjustable-height workstations, say Action Computer Supplies, are designed to offer maximum comfort to operators of all shapes and sizes. (You don't see many square Amiga users these days, do you?) The SIS adjustable workstation, has keyboard, CPU and printer shelves all independently adjustable to convenient working heights, and is available in 600-mm and 700-mm widths for 80 and 132-column printers respectively.

The sliding keyboard and printer shelves are fitted with locking screws for stability when in use. Price of the SIS 600-mm station is £130.00, and the 700-mm station £159.00; side box and shelf extensions are available with the workstation at £57.50 and £37.80 respectively.

Contact Action Computer Supplies, Alperton House, Briggewater Road, Wembley, Middlesex, HA0 1EH. Tel: 0800 333 333.

ARE WE GETTING ENOUGH FIBRE?

GTE Laboratories has said it is continuing to build fibre's ability to transport more and more information for voice, data and image through laser research.

Engineers at GTE Labs, in Waltham, Massachusetts, have told us they have invented a semiconductor laser that operates at 24 gigabits per second, outstripping the speed of the 22-gbps laser they also developed. Wow! You always thought a mere 22 gigabytes much too slow, didn't you?

They said they reduced the 'active area' at the core of the fibre and insulated it from leakage, thus increasing the intensity of the light in the fibre and the rate at which it could be released. 'With the help of these lasers, educational programs, medical images, symphonics, financial analyses and more can be delivered simultaneously over a single fibre' said Robert Lauer, manager of optoelectronic devices and materials at GTE Labs.

Digitised Modemised MIRROR

The Mirror Group Newspapers has bought 20 V32 portable modems from the Codex Corp. a unit of Motorola who of course supply the chips that power the Amiga, for its photographers to use when covering stories outside the United Kingdom.

The modems were tested last summer when photographers transmitted photos of England's World Cup football matches in Italy to the publishing group's offices in London.

Each photographer used a portable image digitiser, supplied by the Swedish camera company Hasselblad, to translate their work into digital format for transmission via satellite link or telephone line. Once digitized, the photos were then sent via the modems, which operate at up to 9,600 bits per second on both asynchronous and synchronous telephone lines. More and quicker photos of Gazza. Now isn't that something to look forward to?!

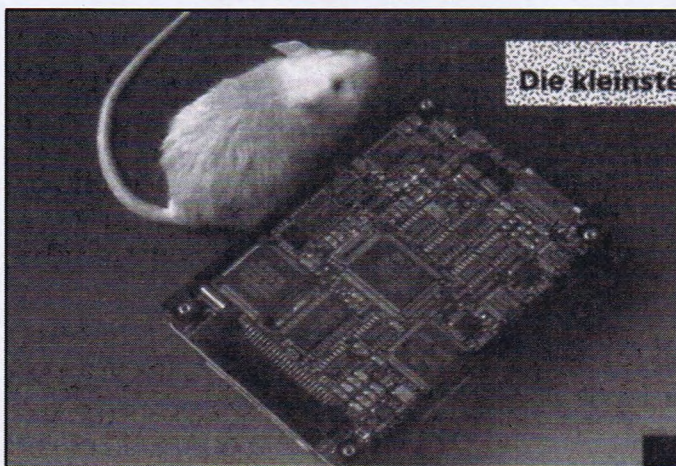
ANTI-JUNK MAIL

ICD, which claims to be the largest supplier of data to the data marketing industry (but is no relation to the Amiga hardware manufacturer) has launched a new database which aims to counteract the direct marketing industry's 'junk mail' image.

Called 'The Suppression Club', the database lists people who do not want to be mailed, have moved home or are deceased. Direct mail companies can run the list of people they intend to mail against The Suppression File so that they can concentrate on targeting potential clients more effectively.

The Suppression Club will supplement the 350,000 names contained in the Mailing Preference Service with more than 800,000 names to form the pool file. Membership of the club will cost a one-off fee of £5,000 to cover start-up and processing costs. Well that's a relief, isn't it? Now, if you are dead, you won't be troubled by the mailman again - and the junk mail companies will save the stamp. The Suppression Club... that's a great title. What about suppressing junk mail altogether?

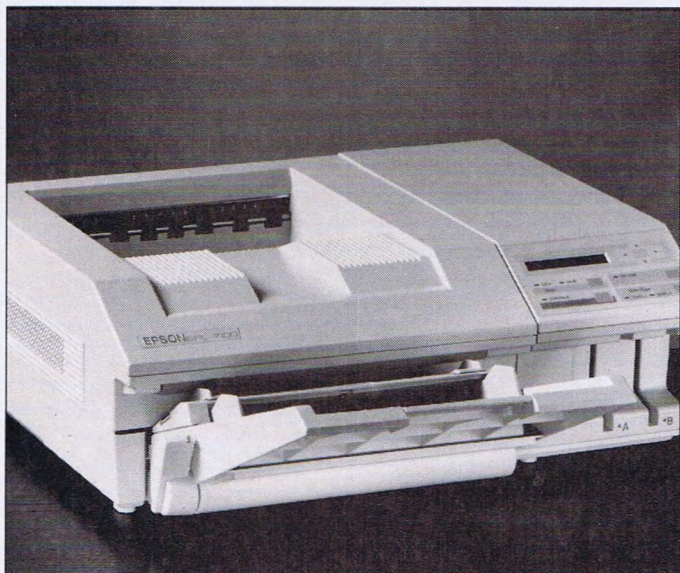
Smallest Amiga Drive?



This little 20 Meg hard drive from Germany is claimed at 100 mm x 70 mm x 15 mm to be the tiniest you can buy for the Amiga. The Arriba HD costs around £325.

Contact: Gigatron, Thuler Strasse 3, Postfach 1130, D4594 Sarrel. Tel: 04474 1010.

LASER WITH IMAGING CARTRIDGES



Epson's new EPL7100 laser, an enhanced version of their popular CQ5000, offers, Epson claims, higher processing speed, increased flexibility with scaleable fonts, and a new Minolta engine producing higher quality output. A major feature is the Imaging Cartridge, a single unit which replaces drum, toner cartridge and collector.

Available from Action well below its MRP of £1199.00 and including Action's two-year extended warranty, the EPL7100 is fully compatible with the HP Laserjet II, and prints at 6 ppm with 300 x 300 dpi resolution.

Features include 512-KB RAM, which can be expanded to 6 MB; thirteen outline fonts

and eleven GQ-mode, bitmapped scaleable fonts; two IC card slots; and RS232/RS422 serial and Centronics parallel interfaces.

Contact: Action Computer Supplies, Alperton House, Bridgewater Road, Wembley, Middlesex HA0 1EH Tel: 0800 333 333

70 SQUARE FEET PAGES!

In the January issue of *AUI*, we reported that New Horizons were releasing *Graphic Designer*. We have now had the chance to look at an early version. Peter Lee opines that *Graphics Designer* is a high performance structured drawing program and judging by the Beta version we have seen, it promises to add a powerful arm to the Amiga's CAD/graphics capabilities.

Differing from bitmapped graphics with the images stored as points, the program can handle actual page sizes of 70 square feet and features a wealth of subtle and sophisticated opportunities for the designer.

A toolbox provides options for creating the images, and alongside rectangle, line, circle and polygon is a neat freehand tool.

Solid colours or user-definable patterns are available, and text can be input on screen.

The benefits of structured drawing include the ability to store much more information in memory, and also a fast way of manipulating data in the form of magnification or rotation.

AUI hopes to bring you a full test drive once the program is complete. The final version is expected shortly (but you know what programmers are, so don't hold your breath!)

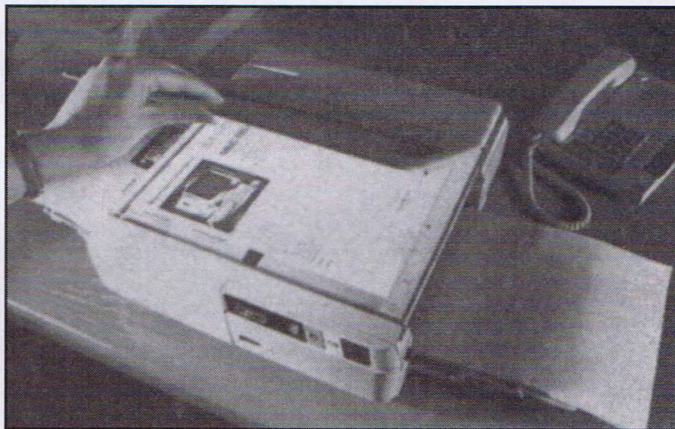
ATLANTA'S 1996 OLYMPICS AIDED BY AMIGA

The Blue Ribbon SoundWorks, formally Blue Ribbon Bakery, Inc., participated in the City of Atlanta's winning bid for the 1996 Summer Olympic games by designing the software used to control its award winning interactive multi-media exhibit on an Amiga. This exhibit debuted in Tokyo, where the City of Atlanta was chosen for the 1996 summer games. The interactive multi-media exhibit utilized an Amiga to co-ordinate videodisks, live MIDI files, animation, narration and a touch-screen display. This technology, pioneered by The Blue Ribbon SoundWorks in conjunction with the Georgia Institute of Technology, is now being used by major corporations.

The Blue Ribbon SoundWorks used its Bars and Pipes MIDI package to compose the entire soundtrack for the presentation. Also used was the Bars and Pipes MIDI Player and Recorder, which is available from the Blue Ribbon SoundWorks in its Multi-Media Kit (\$59.95).

Contact: The Blue Ribbon SoundWorks, 1293 Briardale NE, Atlanta, Georgia 30306. (404) 377-1514

THE TINIEST COPIER?



Sanyo have introduced what they claim is the world's smallest plain paper copier. The SFT-50 desktop copier weighs just 11kg and measures 367mm by 400mm by 123mm, yet it includes three colour monochrome copying, a multifeed system and edge to edge copying up to A4 size.

It can be stored in an upright position when not in use and

the input and output trays fold into the case. The unit can be set to make up to 20 copies while its paper tray will hold - and automatically feed - up to 50 sheets. With all controls mounted on the front of the machine, the SFT-50 offers a 30 second warm-up time and an initial copy time of 16 seconds - after which it will turn them out at six per minute.

TRAVELLING FAX



The fax machine is now moving out of the office with the introduction of the NEC Carfax Cellular Line Interface. This not only allows a fax to be sent via the cellular network but also provides a connection means for portable computers.

NEC see field sales and service engineers, transportation and delivery staff making good use of mobile fax units in general administrative applications. 'The CLI makes the complete mobile office a reality,' says NEC Telecommunications' Malcolm Bartlett.

The CLI interface (no relation to the Amiga CLI, of course) is priced at £350 and can be fitted to existing installations at a charge of £80.

20 RADIATION-FREE DISPLAY PANEL

While expert opinion is very much divided, concern has been raised in several quarters regarding the potential health risks of electromagnetic emission from computer monitors. The Sygnos 68 LCD monitor from Sygnos Technologies is claimed to be virtually free from radiation emissions in addition to providing some ergonomic benefits.

Less than 6mm thick, the display supports full mono VGA graphics at 640 by 480 pixel resolution. Contrast is said to be very good while the unit displays 16 levels of grey and provides flicker-free scrolling and reduced screen glare.

The slim design of the screen

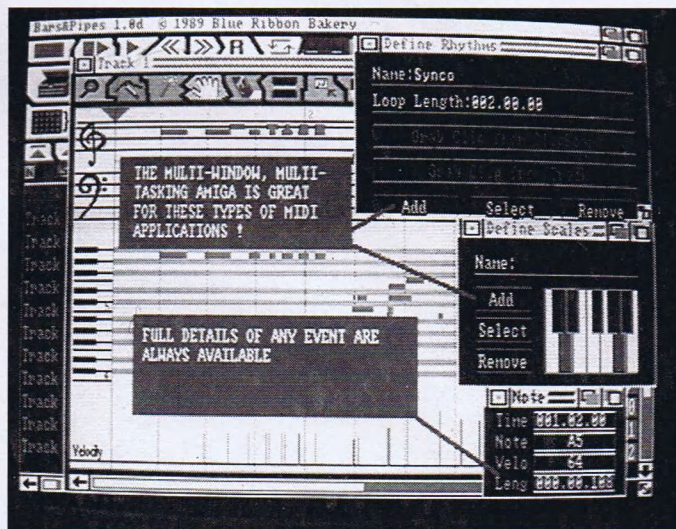
allows it to be positioned easily on any desk and its angle to the user can be adjusted. The very low power consumption display panel receives both power and data from the computer's expansion slot - providing a neat cabling solution.

BROTHER'S FAXES

Brother has announced a fax machine at a special introductory price of £399 plus VAT - the Fax-160. It is an update of Brother's first fax, and offers features such as a faster transmission time of 15 seconds, 16-digit LCD display, including a clock, and speed dialling for up to 40 numbers, 16 grey scales and a polling facility. There is a delayed send facility which allows users to make the most of off-peak telephone rates. **Contact: (061) 330 6531**

BARS AND PIPES PROFESSIONAL

Blue Ribbon SoundWorks has announced the release of Bars and Pipes Professional, an enhanced version of their Bars and Pipes MIDI music sequencing software for the Amiga. This new program is targeted at the professional musician, MIDI enthusiast, and educator, and incorporates many enhancements and features requested by power users of Bars and Pipes.



Bars and Pipes Professional features integrated music notation for both editing and sheet music printing. recorded notes are displayed in standard notation, and note editing can be performed on the notation display. This feature makes Bars and Pipes Professional, say Blue Ribbon, the first Amiga MIDI sequencer to feature an integrated notation function.

An event list editor has also been included in Bars and Pipes Professional, enabling direct text editing of all recorded MIDI data. The event list editing window is linked to the graphics editing window. Event list editing functions include insert, copy, cut, paste, delete, and editing with Bars and Pipes' unique Tools concept. Users can now choose to use either the piano roll, enhanced staff, event list or music notation as their editing medium.

Bars and Pipes Professional includes the new MixMaestro, which allows the automated graphical

mixing of MIDI tracks, including volume, panning and other user specified Control Change parameters. The mixing movements can be recorded dynamically and played back with the performance.

Many other new features have been added to Bars and Pipes Professional, and the product's performance, claim Blue Ribbon, rivals any other sequencer available for other hardware platforms.

Bars and Pipes professional has a recommended retail price of \$379, and requires 1MB of memory. Existing users of Bars and Pipes can upgrade to Professional for \$99. Bars and Pipes will continue to be available for users who do not need these higher end functionalities, and the recommended retail price has been reduced to \$199.

Contact: The Blue Ribbon SoundWorks LTD, 1293 Briardale NE, Atlanta, Georgia, 30306. Tel: (404) 377 1514

ANNOUNCING THE A5000

FREE
INFORMATION PACK
TELEPHONE
(0933) 650677



IS YOUR AMIGA STILL IN THE STONE AGE?

"UNLEASH THE POWER OF YOUR AMIGA"

▼ JUST ADD TO YOUR AMIGA FOR ▼

- *Faster than the Commodore A3000* ●
- *600% Faster than your Amiga* ●
- *Massive 4Mb of superfast memory* ●
- *100% Software Compatibility* ●
- *Plug-in upto a 50 MHz Maths Co-Pro* ●
- *Advanced 32-bit design* ●
- *32-bit Kickstart – Six times Faster* ●
- *Three models – 16.67/20/25 MHz* ●

● THE MACHINE ●

CPU: 16.67 MHz Asynchronous MC68020RC16 2-3 MIPS (8 MIPS peak)
FPU: 12.5 MHz – 50 MHz Asynchronous MC68881RC or MC68882RC
RAM: 4 Megabytes of 32-bit zero-wait-state 256 x 4 80ns DRAMs
SHADOW ROM: Move your Kickstart into 32-bit SUPER-FAST-RAM
SOFTWARE: 68000 Fallback mode for 100% software compatibility
HARDWARE: 100% compatible with Amiga 500/2000 and add-on cards
INTERFACE: Plugs into 68000 processor socket inside your Amiga

68881 – £99 1 Mb RAM – £69

£399

(INC VAT & DELIVERY)

BASIC MODEL – 68020 (16 MHz) + 1 Mb RAM



SOLID STATE LEISURE LIMITED



KYOCERA F-800T
8 ppm LASER PRINTER



Buy it. Then change your mind.

Now, another new laser printer from Kyocera—one which keeps pace with your organisation's needs. With easily expandable memory, the F-800T laser printer actually grows with you ...

AaAa The standard F-800T devours word processing from day one—printing at a fast 8 pages per minute, with the crisp, jet black type that's a Kyocera trademark.

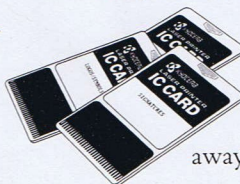
Moving up to illustrated reports, presentation charts? Just slot in a 1 MB memory board, and the F-800T takes graphics in its stride.

Yet even in its base specification, the F-800T does far more than just get you started: with 79 resident fonts, 39 resident bar code formats, plus three dynamic fonts. The F-800T manual feed tray is designed to make easy work of labels and envelopes, even non-standard sizes!



If that's not enough, the PRESCRIBE page

description language lets you use complex forms, logos and graphs—stored on Kyocera slot-in IC cards.



And with seven emulations as standard (including HP LaserJet), you can get printing straight away, whatever your software.

All at a price that makes ordinary printers look expensive. And with a full year's free on-site maintenance.

The Kyocera F-800T with user-upgradeable memory: all the laser printer you need—whenever you need it. And the newest in the broadest laser printer range available. To find out more about why you're better off changing to Kyocera, just clip the coupon. Today.



The manufacturing makes the difference

Kyocera Electronics (UK) Ltd, 8 Beacontree Plaza, Gillette Way, Reading, RG2 0BP. Telephone (0734) 311500.
Please send me your full-information brochure 'Why Change To A Kyocera Laser Printer?'

Name _____

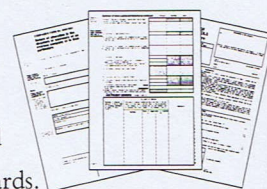
Address _____

Title _____

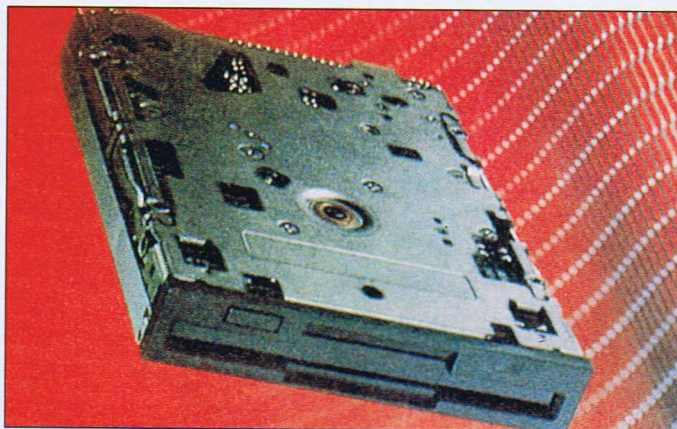
Company _____

Postcode _____ Tel _____

AU 2/90



CITIZEN'S BUDGET 24



Prices within the European 24 pin dot matrix printer market are set to reach an all time low, say Citizen, as they introduce their new 124D - a budget priced, entry level 24 pin printer, offering, they claim educational, home and small business users high value for money.

Built in the UK, this 80 column printer, retails at £279.00. The 124D is strongly backed to repeat the success of its sister product - the four year old 120D+ - which Citizen claim is Europe's best selling budget-priced 9 pin printer.

The 124D is intended to increase the Citizen Standard Range (which comprises the Swift 9, the Swift 24, the 120D+ and now the 124) and has been based on the mechanics of the award-winning Swift 24. Within this family of four printers, the 124D and the 120D+ are positioned at entry level users, whilst the Swift 9 and the Swift 24 are intended for the more demanding user.

Research organisation IDC

forecasts that during 1990 the 24 pin market will have increased by 18.5% from 1,872,120 units. It is estimated that approximately 40% of these units purchased will be models from under the 200 cps category.

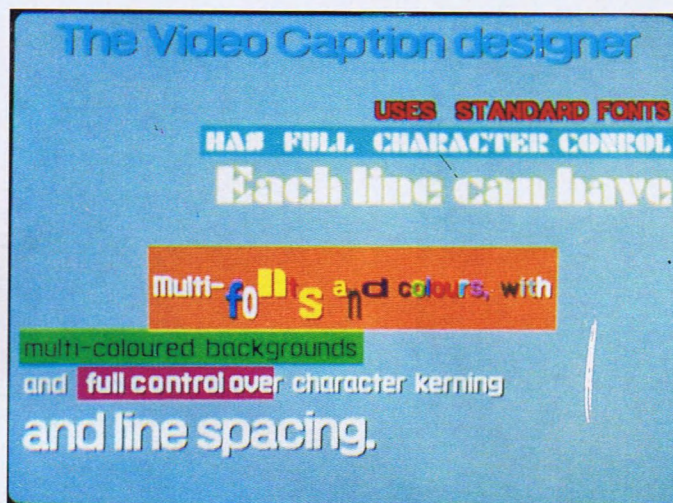
The 124D is offered with a 2 year warranty.

A telephone hotline is available at Citizen's Uxbridge headquarters for technical and product advice. (0895) 72621

OPTIONS FOR THE 124D

Ribbon £4.50
Printer Stand £23.00
Manual Sheetfeeder £40.00
Automatic Sheetfeeder £84.00
Serial Interface £30.00
All prices are exclusive of VAT

MAZE'S CAPTION DESIGNER



Maze Technology have announced the launch of VIDEO CAPTION DESIGNER. The Shirekilo Ltd 'Video Caption Designer' is a professional level video titling and effects generator program developed from software used on Channel 4's 'Network 7' and ITV's 'Chart Show' broadcasts.

Video Caption Designer's features include: over 50 SCREEN TRANSITION effects such as PANS, WIPES, ZIP, BLINDS and REVEALS etc. which operate on text and/or imported GRAPHIC images and which can be varied to produce many more powerful effects.

- SUPER SMOOTH CONTINUOUS Vertical ROLL and horizontal CRAWL which operate in all graphic modes (including hi-resolution 704 by 560). Additionally graphics may be included in rolls and crawls.

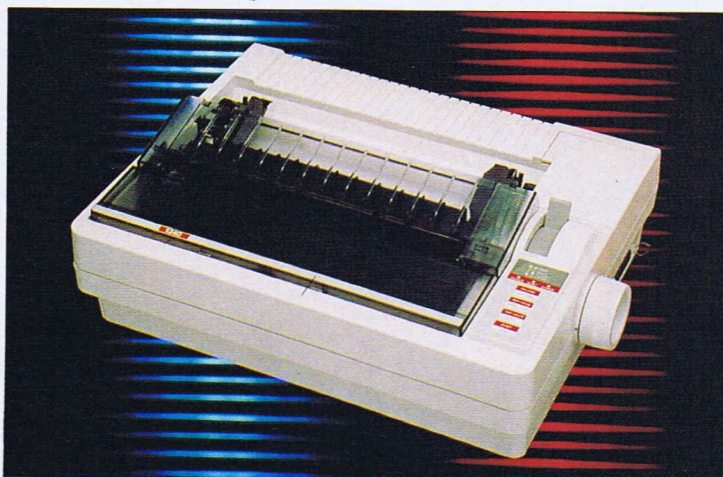
- A consistent MENU DRIVEN USER-INTERFACE which is, Maze say, quick and straight-

forward to use for professionals and amateurs alike. The built-in WYSIWYG (What-You-See-Is-What-You-Get) EDITOR combines fast operation with page and line cloning facilities to enable TEMPLATES to be used to speed the design of sets of pages.

The Shirekilo 'Video Caption Designer' software package is available at a special launch price of £199.95 (inc. VAT). It requires 1 Megabyte ram.

Contact: Maze Technology, Zenith House, 210 Church Road, Leyton, E10 7JQ. Tel: 081 556 5620

TINY DRIVE



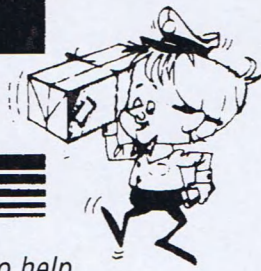
The smallest disk drive in the world?

All drive manufactures are fiercely competing to provide smaller and smaller drives as the note-book sized laptops reduce in weight and height and become accepted as likely to overtake desktops.

Citizen has developed what it claims is the world's smallest 3.5-inch floppy disk drive (FDD) - a mere 15mm high.

The drive, called the V-Series, has full read/write capabilities and is, say Citizen, some 53% smaller and 63% lighter than the 1-inch high FDDs currently on the market. The company would not reveal which laptop companies will be using the drives - but some major companies are already using other Citizen FDD models in the LTE range, Citizen may also be working on an even smaller, lighter product than those currently on the market.

BYTEBACK



FAST DELIVERY SERVICE

Ring us Now! **0636-79097** we're programmed to help

...and the keenest prices

FIND OUT WHY MOST AMIGA USERS PREFER BYTEBACK!

GAMES

AMOS - Games Creator	34.99
Armour Geddon	16.99
Atomic Robikid	17.99
Awesome (PLUS T-Shirt)	24.99
Badlands	16.99
Bar Games (Over 18)	16.99
B.A.T.	16.99
Battle Command	16.99
Battle of Britain	19.99
Shadow of the Beast 2	24.99
BSS Jane Seymour	15.99
Cadavar	16.99
Captive	15.99
Carthage	16.99
Chaos strikes Back (MB)	16.99
Chase HQ 2	16.99
Corporation	15.99
Curse of the Unsure Bonds	19.99
Damocles Mission disk	9.99
Days of Thunder	15.99
Dragons Breath	17.99
Dragon Breed	16.99
Dragonstrike	19.99
Dungeon Master	15.99
ESWAT	16.99
Flight of the Intruder	19.99
Golden Axe	16.99
Hard drivin' 2	16.99
Horror Zombies	16.99
Immortal	16.99
Imperium	16.99
Indianapolis 500	17.99
James Pond	16.99
Jack Nicklaus Unlimit Golf	19.99
Kick Off 2 (MB)	15.99
Lotus Esprit Turbo	16.99
Midnight Resistance	17.99
Midwinter	19.99
Monty Python	14.99
Mystical	16.99
M1 Tank Platoon	19.99
Nightbreed	16.99
Ooops Up	16.99
Operation Stealth	17.99
Over the Net	15.99

FREE - PUBLIC DOMAIN DISK!
with every game from this column!
Pick from list opposite.

Pang	16.99
Plotting	17.99
Pool of Radiance	19.99
Powermonger	18.99
Puznic	16.99
Ranx	16.99
Rick Dangerous 2	16.99
Robocop 2	16.99
Rorkes Drift	15.99
Shadow Warriors	18.99
Sim City	17.99
Speedball 2	16.99
Spindizzy Worlds	16.99
Strider 2	16.99
Super Off Road Racing	16.99
Supremacy	19.99
Teenage Mutant Hero Turtles	16.99
Turrican	15.99
Ultimate Ride	16.99
U.M.S. II	19.99
Vaxine	16.99
Voodoo Nightmare	16.99
Welltris	16.99
Wings (MB)	18.99
Wolfpack	19.99
Wrath of the Demon	19.99

MEGA DEALS

AmiRAN 1000 Memory Expansion
+ FREE: Four 1MB Demo Disks!

500k RAM Expansion!	39.99
500k RAM + DUNGEON MASTER	49.99
500k RAM + KICK OFF 2 (MB)	49.99
500k RAM + DRAGONS LAIR	59.99

any of the above with CLOCK add .5.99

CITIZEN 1MB DISK DRIVE	89.99
+ FREE: Over £100 Software!	
Shadow of the Beast, Kick Off, Battle Squadron and RVF Honda!	

Hard Drivin' + 10 DISKS	11.99
-------------------------	-------

CONTRIVER MOUSE	19.99
+ Mouse Mat + Mouse Bracket	

NAKSHA MOUSE	29.99
+ Mouse mat + Mouse Bracket	

FURRY MOUSE COVER!	6.99
(with eyes, ears and nose!)	

SALE ★ SALE ★ SALE

Afterburner	7.99
Batman: Caped Crusader	7.99
Blood Money	9.99
Bloodwych	9.99
Colossus Chess X	9.99

Deluxe Strip Poker PLUS	
Centrefold Squares	15.99

Chrono Quest II	9.99
Centrefold Squares	9.99
Deluxe Paint	3.99
Deluxe Strip Poker	9.99
Galaxy Force	4.99
Kid Gloves	9.99
Last Ninja 2	7.99
Silkworm	7.99
Super Hang On	7.99
Tower of Babel	9.99
Voyager	4.99

COMPILATIONS

Master Mix	16.99
Thunder Blade, Turbo Outrun, Crack Down, Super Wonder Boy, Dynamite Dux	
SPORTING GOLD	19.99
Games Winter Edition, Games Summer Edition, California Games	
HOLLYWOOD COLLECTION	19.99
Ghostbusters II, Robocop	
Batman (Movie), Indiana Jones	
PLATINUM	17.99
Ghouls and Ghosts, Strider, Black Tiger, Forgotten Worlds.	
POWER PACK	16.99
Xenon II, TV Sports Football, Bloodwych, Lombard RAC Rally!	

JOYSTICKS

Joystick & Mouse extension	4.99
Joystick lead - 3 metres	4.99
Quickshot III Python	9.99
Quickjoy III Supercharger	11.99
Quickjoy Jetfighter	12.99
Quickjoy V Superboard	19.99
Competition Pro Extra	15.99
Arcade Joystick	16.99
Zip Stick Professional	15.99

ACCESSORIES

Locking Disk Box (40+)	6.99
Locking Disk Box (80+)	8.99
Media Box (150 - stackable)	19.99
Mouse Mat	3.99
Keyboard or Monitor Cover	5.99
Midi Master	34.99
Phillips CM8833 monitor	259.99
Hardware Reference manual	19.99

DISKS 100% Guaranteed!

Bulk disks with labels!	
10 disks	6.49
50 disks	29.99
100 disks	49.99

SONY Boxed with labels!	
Box of 10	9.99
Box of 10 (x5)	47.99
Box of 10 (x10)	89.99

CHILDRENS

Dinosaur Discovery Kit	17.99
First Letters and Words	17.99
Kid Talk	17.99

Fun School 2 (Under 6)	12.99
Fun School 2 (6 to 8)	12.99
Fun School 2 (over 8)	12.99

Fun School 3 (Under 5)	15.99
Fun School 3 (5 to 7)	15.99
Fun School 3 (over 7)	15.99

Micro English (GCSE)	18.99
Micro Maths (GCSE)	18.99
Micro French (GCSE)	18.99
Postman Pat	8.99
Robot Reader	18.99
The Three Bears Adventure	17.99

ART AND MUSIC

Amiga Appetizer	24.99
Amiga Graphics Starter Kit	24.99
Audio Master (3)	54.99
Deluxe Music Con Set	49.99
Deluxe Print (2)	34.99
Deluxe Paint (3)	59.99
Disney Animation Studio	79.99
Mastersound	29.99
Professional Draw (2)	99.99
Quartet	99.99
Real Things - Birds 1 & 2	23.99
Real Things - Humans	23.99
Real Things - Horses	19.99
Sound Express	29.99
The Art Department	54.99
Video Titles 3D (NEW 1.5)	79.99
X-Cad Designer	89.99

UTILITIES

BBC Emulator	39.99
Devpac 3	44.99
DigiCalc	29.99
Distant Suns	34.99
GB Route	29.99
Gold Disk Office	99.99

X-COPY PROFESSIONAL (3.1)	34.99
The BEST Backup utility	

Pagesetter (2)	49.99
Pro Clips (Clip Art)	19.99
Publishers Choice	79.99
Scribble Platinum	42.99
Workbench 1.3	14.99
Works Platinum	79.99

PUBLIC DOMAIN

NEW LOW PRICES

1 disk = £1.99
10 disks + file box £15.99

Ask for our NEW catalogue

AU.01 Jazzbench; Superb workbench replacement; fully multitasking!
AU.03 QL Emulator; plus 2 disks full of programs (3 disks : £5.97)
AU.13 Visicalc; Spreadsheet . . .
AU.18 North C; Programming language
AG.01 Star Trek.1; Version of the ST adventure game (3 disks : 5.97)
AG.02 Games; Pacman, Othello, Hanoi Gravity wars, Jackland, Empire, etc.
AG.03 Agatron Star Trek; Space game Superb simulation! (2 disks : £3.98)
AG.04 Monopoly; classic board game!
AG.05 Pacman 87; Multi level game.
AG.06 Games; Cosmoroids, Backgammon, Amoeba, Stone Age, Chain Reaction . . .
AG.10 Space Invaders; The Classic!

AG.13 Adventure Solutions; Over 100 including; Dungeon Master, Rain Bird, Infocom, Sierra, Ultima, Bards Tale, Future Wars (2 disks : £3.98)

AG.14 Flascheiber; Professional quality Boulderdash style game!
AG.16 Castle of Doom; Adventure
AG.24 Drip; Superb addictive 15 level arcade quality game!
AG.25 Train Set; Design Railway and run 2 trains around the track!
AG.27 Star Trek USA; Space Strategy featuring - Enterprise & Crew!
AW.02 Workbench Plus; TVText demo, Fractals, Virus X, Clip it, DMouse
AW.03 Icons; 100's including; the amusing Naughty Icons, Ram Icons, Music Icons . . . Plus Icon Utilities.

SND.01 Soundtracker; Four versions of this superb PD music program plus various music utilities!
SND.02 Soundtracker 4; Alternative Blue version, coupled with complete Instruments disk! (2 disks : £3.99)
STI.01 to 08 Instruments; 100's on each disk, use with Soundtracker!
STS.01 to 02 Samples; Superb Sound samples, use with Soundtracker!

AD.01 Walker demo 1; animation of Star Wars (Need 1MB)
AD.04 Probe Sequence; Simulation of video pictures from intersteller probe landing on an alien planet!
AD.25 The Run; Superb 3D Car chase.
AC.02 Pagesetter art; 100's of professional quality clip art pics.
AC.04 IFF Fonts; 30 screens of high quality fonts plus surfaces.
AS.22 Viz; Complete set of pictures from the very funny Viz Calendar!
AX.01 Samantha Fox; 12 high quality digitised pictures!
AX.04 Playboy 1; 16 digitised pics.
AX.05 Playboy 2; 18 digitised pics.
AX.06 Bra Busters; digitised film samples from Electric Blue Video
AX.21 Showering Girls; Fun with a hosepipe, digitised sequences . . .

All prices include VAT and FIRST CLASS POST!
GUARANTEED RETURNS OF POST DELIVERY ON ALL STOCK ITEMS!

BYTEBACK

DEPT AUI, 6 MUNDY CLOSE, NEWARK, NOTTS NG24 1JE

Cheque, postal orders or
credit card facilities are
available



67,000 Amiga Fans

It is claimed by the organisers that Amiga 90, held in November in Cologne, Germany, attracted 67,000 visitors and over 160 exhibiting companies. The four day event featured Amiga technologies from over fourteen different countries. (See *AUI* January)

CBM Germany, the official sponsor of the event, occupied a central stand of over 350 sq. meters (3150 feet), and showed the complete line of Amigas, including the new Amiga 3000. The focal point of the Commodore display was a forty foot high video wall, showing a collection of Amiga produced videos from around the world.

The organisers have commented that there were several major features that proved extremely popular including the AMI Shows Art Pavillion, which had over 90 pieces of Amiga art; the Amiga-Dos-Cafe, where panel discussions and debates on the latest Amiga topics took place; and the Amiga MasterClass series of conferences on graphics, animation, video and programming.

Alexander Glos, AMI Shows' General Manager told *AUI* 'Amiga '90 is a clear reflection of the strength, diversity and intensity of the world wide Amiga market'.

AMI Shows Europe GmbH has plans for three shows in 1991, including Berlin, April 25-28; London, Wembley, June 7-9; and Cologne in November.

HELLO DICK TRACY HERE!

According to a report from MIRC (Market Research Intelligence Corporation), the demand is growing for mobile communications technologies-most notably, for numeric pagers and smaller, lighter cellular telephones. Numeric pagers, especially wristwatch models, are capturing more revenue and market share as costs decrease and operation becomes simplified. Handheld cellular phones are exploding in both revenues and shipments. (Exploding? We hope not!)

The US cellular phone and pager equipment market grew to \$855.7 million in 1989. New products, changing distribution and aggressive marketing strategies will continue to fuel the market. The development of a digital network will give more people access to cellular phones, and the development of new mobile technologies will stimulate the market.

There are four types of pagers: the tone-only, digital, alphanumeric, and tone/voice. The tone-only was once the most popular pager, but the digital pager, which conveniently displays the caller's phone number, has displaced the tone-only in popularity. Cellular phones and pagers are frequently used together with voice mail. Callers can always complete their call to a cellular subscriber by leaving a message in a voice mailbox, which in turn alerts the called party via a pager.

Existing cellular systems are near or past their capacity limits. In New York, Los Angeles and Chicago, there is presently insufficient capacity to meet the needs of subscribers. The introduction of digital technology in the early 1990's will alleviate this constraint, reducing service costs and adding more subscribers to the system.

The development and consolidation of the low-end mar-

ket for cellular phones will be the most significant market trend in the industry in the near future, say MIRC. Low-end units appeal to the consumer market, and lower prices will make the cellular phones attractive to those in sales and marketing, management or service industries. In just the last year, a low-end has developed for the portable cellular phone.

Competition in the mobile equipment industry will continue to be strong, and it will be difficult for any one manufacturer to reach the top. Of the top manufacturers, only a few percentage points separate the first from the last.

Since there are about 20 manufacturers and none was able to gain an early lead, intense competition will be the norm. In the paging industry, it will continue to be difficult to take market share away from the leader - Motorola, who of course make not only chips for paging but for the Amiga too. (How do they find the time?)

The full development of the cellular phone and pager markets is discussed in a new study, U.S. CELLULAR TELEPHONE AND PAGER MARKETS, just published by MIRC.

**Contact: MIRC Europe,
54, rue Vandenhoven, 1150
Brussels, Belgium. Tel: +32
(2) 762 2781.**

SUPERCALC 5 AT £79.00

SuperCalc 5 is now available from Action Computer Supplies at £79.00 for the single-user, LAN ready version, and £199.00 for the LAN pack version, which provides for three extra users: these packages were formally available from Action at £214.00 and £441.00 respectively.

'These reductions come into effect immediately, and follow a radical change in marketing strategy by Computer Associates recently announced: they bring powerful spreadsheet capability within reach of even the smallest user' says Sanjaya Wadhvani, Action's software business manager.

SuperCalc 5 provides multiple and linked spreadsheets; a wide range of sophisticated graphics, with over 100 types of graph in both 2-D and 3-D; Lotus 1-2-3 compatibility; and an add-in manager, allowing third-party software to interface directly with SuperCalc 5.

Action provides a free telephone service for orders and enquiries on 0800 333 333.

**Action Computer Supplies,
Alpertown house, bridgewater
Road, Wembley, Middlesex,
HAO 1EH**

RADIO LANS

Arlan, a wireless Lan product made by Canadian-based Telesystems, is to be made in the UK. Arlan can be installed in locations where extensive cabling is either difficult or impossible, such as listed or old buildings. Cableless Lans might also be suitable for factories or educational establishments where computers need to be mobile, or government agencies which often require temporary installations during special assignments.

Arlan's system uses radio transmission which allows communication between IBM PCs and compatibles up to 90 metres apart, in different rooms or between buildings.

It operates with Novell Netware 2.1 and 386 machines. **Contact Chasecom on (071) 251 4455.**

RE-INK

A reinking service for printer ribbons has been introduced by a company called Mektronic.

Apart from the obvious cost saving - 80-column ribbons can be reinked for £0.95 - there are other considerations to take into account, says Mektronic.

A well-inked ribbon enables the printhead to be positioned further from the paper and thus reduces wear on the printhead. And there is the purely environmental consideration - think of the waste of throwing away a printer ribbon which could be reinked up to 40 times!

COMMODORE JOINS ELSPA

Commodore acknowledged the number one manufacturer in the computer entertainment industry, has become the first hardware company to be accepted into the influential European Software Publishers Association (ELSPA).

Commodore's membership of ELSPA, they say, reflects the company's long standing commitment to the software community and the world wide success of its C64s and Amigas which together have topped the 20 million unit sales mark.

ELSPA's chairman Andrew Hewson said: 'Commodore's commitment to the computer entertainment sector has been apparent for some time now and I'm sure they will bring considerable help and advice in driving ELSPA towards achieving its objectives.'

Steve Franklin, Managing Director of Commodore, said: 'Without the support of the software community, Commodore is like a car without petrol and without us, they are like filling stations without cars. Together, we are the single biggest force in computer entertainment.' Filling stations? Cars? There is, we can authoritatively state, no truth in the rumour that Mr. Franklin drives an electric-motored Rolls Royce or that Commodore is to be taken over by Shell or even that the next Amiga is to be named the C5.. (We hope!)

STAR REWRITES POSTSCRIPT PRICES

Star Micronics has slashed the price of its LaserPrinter 811 StarScript from £2699 to £1999, making it, they claim, the first 8 page per minute Postscript compatible laser printer available under £2,000.

Roger Bayley, Star's Sales and Marketing Director said 'Our Postscript compatible laser is now the same price as other market leading nonpostscript lasers. We have disassembled every buying motive for a current laser printer, and in every case we at least match the most popular need, or beat the competition hands down. It will be interesting to see how the market reacts to this new pricing structure'.

Star has also reduced the prices of the starScript upgrade for its nonPostScript laser printers from £888.00 to £499.00. Memory expansion boards have been reduced to £599 for 2 MB and £1099 for 4 MB. The new prices are available immediately.

Contact: Star Micronics UK Ltd. (0494) 471111.

BUSINESSLIKE COMMODORE

Commodore UK is increasing its efforts in the business PC market in the first quarter of 1991. Terry Cooke, national sales manager, pointed out that the company had prepared for the initiative by enlisting 50 'premier' dealers, and improving the main distribution channel.

'I can see a situation where we're very successful in the next two to three years'. He said the Commodore PC range will be including a 25MHz 486, and two slimline 386SXs. There will also be further product launches including a 386SX machine and other laptop computers. 'CBM recently launched its first MSDOS laptop, the LTE 286.

Commodore has enlarged its staff at its Maidenhead headquarters in anticipation of increased business. 'We have a fairly significant support function with 25 people - rising to 30.

CBM is also using the Amiga for business applications and currently has Unix International version 5.4 on Amiga 3000s and Amiga 3500s under beta test at a number of universities, including Cambridge University' said Cooke.

THINK'S CLIP ART No. 1 TRANSPORT AND SIGNS

Think Ltd., developers of the Concept Keyboard, have announced their first in a series of Clip Art packages - Transport & Signs. This is 800K of data which equals more than 200 images. It includes: Trains, Bikes, Trucks, Aeroplanes, Balloons, Buses, Motorbikes, Cars, Hovercraft, Helicopters, Ships and Submarines.

And for Signs it has such as: Safety; Inflammable; Requests; No Smoking; Highway Code.

The Clip Art is in full colour and can be used in all Amiga graphics programs: Desktop publishers, Word processors, Video, Art, Databases etc.

It also includes a guide to create many more images and how to use them in a variety of programs. Price £15.00

G2 BROADCAST VIDEOCENTER

G2 have launched a Broadcast VideoCentre, a VC3 Genlock Coder & Keyer for the Amiga. The VideoCentre VC3 is a full broadcast quality genlock, coder and keyer for use with all Amiga models including the new 3000 series. It has been designed to conform to the IBA Code of Practice and incorporates G2's latest coder technology. The main electronics are housed in a 1U 19" rack mount case. The unit has Composite, RGB, Component (YCrCb) and S-VHS (YC) inputs and outputs as standard. The unit incorporates 3 channels of keying and will therefore key the Amiga's output over any of the above video formats. The unit can be operated by software without the remote control.

The VC3 is designed to be installed in a TV studio and requires a good quality external source of black and burst. It is designed for use with stable (time base corrected) signals. **Contact: G2 Systems, 5 Mead Lane, Farnham, Surrey, GU9 7DY. Tel: (0252) 737151.**

SUNRIZE SWEETENS AUDIO

SunRize Industries has announced that its Amiga-based 'Audio for Video Post Production System' is close to completion. Although no final price or details have been released, the system facilitates features needed for video production. Both hardware and software are under development.

To provide the analog to digital conversion, users will have their choice of two cards. Both cards work on Amiga 2000s or 3000s. The first card features a 12 bit sampler and player, on-board microprocessor, ram, SMPTE in/out, MIDI in/out, and linear phase low pass filters. The filters can be adjusted by software for a wide range of cut off frequencies. sampling rates of up to 44KHz are supported.

The second card, in the process of being licenced from Vision Quest, supports multiple channel 16bit in/out. Also featured is on-board ram, digital low pass filters, and a Motorola DSP chip (the same one used by Steve Jobs' Next computers).

To support the hardware, modular software is being developed. Modules to record and edit direct to hard disk are well along. A cue list module is also under development. All modules support time code.

With this new Audio Sweetening System, users will be able to record their entire sound track to hard disk along with SMPTE time code. They can then edit the sound and specify SMPTE in and out points. a final mixdown can be performed digitally, followed by playback to video tape synced to time code.

Both the low cost 12 bit hardware and the more expensive 16 bit hardware are being developed. the 12 bit card will feature a signal to noise ratio and frequency response better than most professional quality video tape recorders. However the 16 bit card with its 'CD quality' sound will be available for those who really need it.

Contact: SunRize Industries, 2959 S Winchester Blvd. suite 204, Campbell, CA 95008. tel: (408) 374 4962

1.5 MILLION PAGE LASER PRINTER

Ricoh have announced the launch of a new laser printer which they claim 'combines laser printing excellence with the latest scalable font technology to provide a powerful, low cost and fast alternative to a PostScript Printer'. (Well, they would say that wouldn't they?)

The LP4150 FLEX, is based on the well-known heavy duty 15ppm Ricoh engine and has a high-duty cycle of up to 25 thousand pages per month and a life time of around 1.5 million pages.

The new printer introduces FLEX font scaling technology in combination with a BluePoint BP100A Font Scaling Co-Processor to add high speed, scalable font processing capabilities to the widespread PCL 4.0 language used by the HPLJ and compatible printers.

Drivers taking advantage of scalable fonts are already available for such popular software packages as Windows versions 2 and 3, Microsoft Word, Wordperfect version 5.1, Wordstar version 6, Ventura Publisher etc.

The LP4150 Flex comes with a standard complement of 35 scalable typefaces, which are compatible to the 35 Original PostScript fonts and the printer offers increased typographical flexibility by its compatibility to the extensive Bitstream Fontware Type libraries, being used in a wide range of word processing graphics and desktop publishing applications.

Ricoh believe that this new printer will be of particular interest to users of advanced word processing, desk top publishing, spread sheets, advanced business graphics and shared printer users in the PC LAN environment. The LP 4150 will have a recommended retail price of £3,995.

PERFECT FIT FOR PERFECT SOUND AND AUDIOMASTER

SunRize Industries, has announced tests confirming compatibility between Perfect Sound III hardware and the new Oxxi-Aegis AudioMaster III software. The addition of digital gain and a hardware-based sampling clock to Perfect Sound III improved its sound quality and ease of use at the expense of compatibility with AudioMaster II. With the recent release of AudioMaster III, perfect sound compatibility is again available, say SunRize.

AudioMaster III is software that provides sophisticated digital sound editing functions to the Amiga owner (See review *AUI* January).

Users of AudioMaster can create instruments for Sonix. Audiomaster also allows users to set multiple loop points in a sample. This can be used to create musical scores that take up less memory than was previously possible. However, AudioMaster requires the user to purchase a sound sampler as it is software only. SunRize told *AUI* that Perfect Sound III now works well with AudioMaster, allowing users to sample sounds with the best possible quality.

Perfect Sound III comes with a high-quality stereo audio sampler that attaches to the Amiga parallel port. Built-in digital gain, noise filters, voltage regulation, sample and hold circuits, hardware based sample timing, and microphone pre-amp, make, say SunRize, Perfect Sound possibly the best eight bit sampler available for any computer. Perfect Sound comes with editing software which users employ to cut, copy and paste sounds. IFF instruments can be created and real time effects such as echoes and delays, and now users have the option of purchasing additional software, such as AudioMaster, for use with their Perfect Sound hardware.

SCHOOLS ON LINE

A British Computer Society (BCS) report called for online computer services to schools, so pupils can gain fast access to a wider range of sources than school library books can provide.

The report, Classrooms Without Walls, said that online computer information systems will be beneficial to pupils' study and provide a valuable introduction to IT.

(Judging from another report in The Guardian, some school books are so out of date that this is indeed good news for pupils!)

"QUOTES OF THE MONTH" on Japan

On Unix in Japanese:

Steve Khann, V.P. Trame Technologies Inc: "Once you double byte the product, you can go into the Chinese and Korean markets and have a leg up"

A leg up, really? Is this a Japanese shaggy dog story?

And from John Hann, General Manager NEC UK: "Japan is certainly a strong force to be reckoned with and I think that there will be strong competition between the two (East and West) but at the end of the day I don't see Japan conquering the world."

Well that's a relief, but perhaps we should ask our late motorcycle, TV, and sewing machine etc. industries.

(By the way NEC is a Japanese company too)

EXPRESSWORKS DYNACADD

Expressworks have announced the release of Ditek International's 2D and TRUE 3D CADD package, DynaCADD.

DynaCADD is a 2D and TRUE 3D general purpose Computer Aided design and Drafting software solution for electrical, mechanical, architectural or civil applications.

DynaCADD revises, designs and details drawings in 2D and TRUE 3D while combining an extensive collection of features, fast display speed and seamless performance including the capability to read and write DXF file formats.

DynaCADD is claimed to remove the tedious work of detailing. The automatic dimensioning features are said to be flexible and easy to use. All selections are made with the single press of a button, whether dimensioning to European or North American Standards.

DynaCADD sends all or any portion of any drawing at any scale, including best fit, to all popular Pen Plotters, Dot Matrix Printers, Laser printers, Postscript Printers and Disk files.

The package is also available on MS-DOS 286/386/486 based systems.

DynaCADD's attention to ease of use substantially reduces the learning curve normally associated with any CADD program employing features such as context-sensitive online help and documentation, while taking full advantage of a sophisticated graphical interface.

DynaCADD performs all of the necessary text functions, attributes and manipulation including the use of professional Desktop Publishing fonts from AGFA Compugraphic. A full Vector Font Editor and MAKEPLOT program are also included.

Expressworks say DynaCADD offers an alternative solution to expensive and difficult to use CADD systems, bringing main frame capabilities to the CADD professional at a fraction of the cost. The RRP of DynaCADD is £650.00 plus VAT. There are also special educational prices.

Contact: Expressworks Ltd.
75 Heath Lane, Upper Hale,
Farnham, Surrey, GU9 0PX.
Tel: (0252) 726255.

But Seriously

HiSoft Devpac 2 Assembler/Debugger

"Devpac has it all plus a lot more" - ST Format, Dec 88

Consistently acclaimed as the best assembler development system for the Amiga, Devpac Version 2 is a complete package including:

- ✓ Powerful, extremely fast assembler with macros, conditional assembly, include, optimisations, local labels, multiple hunks, producing executable or linkable o/p.
- ✓ Advanced, multi-window symbolic debugger with single-step, dynamic conditional breakpoints, full expression evaluator, disassembly to disk etc.
- ✓ Integrated, fast and easy-to-use editor so that you can create, assemble, debug, edit, assemble etc. all without leaving the editor. CLI versions are also included for those who have strong editor preferences.
- ✓ Fast Linker, standard Include files and full, ring-bound documentation.

With full technical support and constant improvement, Devpac has no rivals - most of the top software houses who develop on the Amiga use Devpac - why don't you?

SAS/Lattice C ver 5.10 New!

"... a very professional package" - Transactor May 89

Quite simply, SAS/Lattice C 5 is the best C system you can buy for your Amiga. Having sold more than 12,000 copies worldwide, the package is used by professionals & hackers alike. Upgrades from version 5.0x cost £34.95 - send your master disks back.

- ✓ Powerful, enhanced C compiler with full 68020/68030/68881/68882 support plus screen editor, faster linker, assembler, librarian, code profiler, disassembler & more.
- ✓ Advanced global optimiser which gives your programs performance improvements of up to 40%. You can optimise for execution speed or program size.
- ✓ The CodeProbe source level debugger with 4 separate windows, allowing you to single-step through source code, set source line breakpoints, examine, modify and continuously monitor your C variables and much, much more - invaluable.
- ✓ Workbench 2.0 support and environment, AREXX support, C++-style comments.

SAS/Lattice C 5 has improved ANSI compliance, function prototyping, is multi-tasking & re-entrant, has nearly 300 library functions and comes complete with full technical support.

HiSoft BASIC Version 1.05 with Extend

"HiSoft BASIC is an excellent choice" - ST/Amiga Format March 89

HiSoft BASIC is the answer to your programming prayers, an extremely fast, interactive, standard and easy-to-use system, used by many top software houses all over the world.

- ✓ Modern, structured programming with long IFs, multi-line functions, sub-programs, REPEAT, DO, CASE, full recursion, local & global variables etc.
- ✓ No limits to your program size and no limits on the size of any variable, memory permitting, plus the ability to link easily with C and assembler programs.
- ✓ Totally interactive system with easy-to-use Intuition editor allowing mistakes to be corrected simply and quickly, substantially reducing development time.
- ✓ Extremely close compatibility with AmigaBASIC and Microsoft PC QuickBASIC 3.

Complementing HiSoft BASIC, **HiSoft Extend** is a comprehensive set of library routines for IFF files, gadgets, menus, sub-menus, sound, HAM mode and more. Normally costing £19.95, we are including this package, **for only £5 extra** until 1 January 1991, if you use the order form below.

Special Offer to Amiga User International Readers

Use the order form below to order any HiSoft products and we will send you, totally free of charge, an Amiga Starter Pack consisting of: a mouse mat with the Amiga ASCII character set, a stylish disk wallet holding up to 8 disks and 4 quality double-sided diskettes; a package worth over £14 if bought elsewhere!

Please rush me the following software together with my free starter pack:
(all prices include 15% VAT and postage and packing within UK. Please phone for export details)

- ☐ **Devpac Amiga 2** **£59.95**
- ☐ **SAS/Lattice C 5.10** **£229.00**
- ☐ **HiSoft BASIC & Extend** **£84.95**

Name:

Date:

Address:

AUT12/90

I wish to pay by:

- ☐ Cheque/POs ☐ Access
- ☐ Visa

Card No:

Expiry Date:

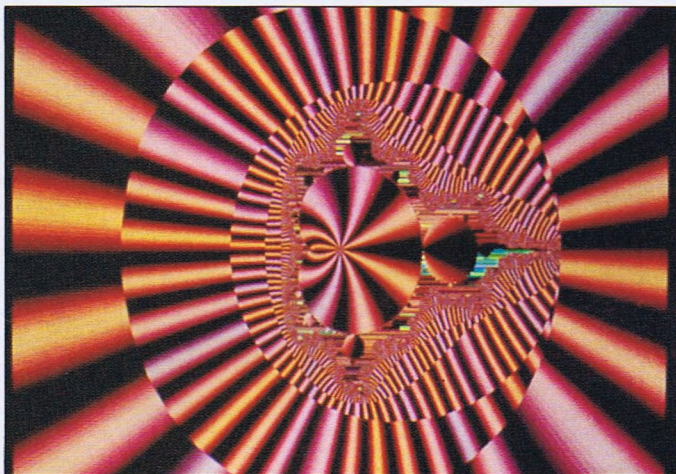
Signature:

HiSoft
High Quality Software

The Old School, Greenfield
Bedford MK45 5DE UK

Tel: (0525) 718181
Fax: (0525) 713716

A CATALOGUE OF CHAOS



Frachaos, who claim to be the first UK company to specialise in fractals, have launched a new catalogue. Entitled "The Catalogue of Chaos", it is said to be the first of its kind in the UK and includes many fractal-related goodies, Frachaos claim, not previously available in the UK.

Fractals is the new branch of geometry that expresses the beauty, intricacy, and simplicity of the natural world through the computer and variable algorithms. (see review of Scene Generator in December 1990 AUI.)

Fractals have made their mark in fields as disparate as 'frontier' medicine and pop music videos.

Computer artist and lecturer in Computer Graphics, Jake Davies says 'Since the Equinox programme was screened two years ago there has been a rapidly growing interest in fractals and chaos, not only in mathematics and the sciences, but also in entertainment and fashion etc. fashion designers call it the paisley of the 90's.

Unfortunately it has been hard

to get hold of the best products in the UK - and that is why we set up Frachaos in the first place. We find all kinds of people are interested in chaos, so we have had to cater for beginner and enthusiast alike. Recently there has been a lot of interest in Fractint V.14, but our compilation of videos, books, shareware, fine art prints as well as commercial software is proving equally popular.'

The Cornish company's catalogue includes some 12 items new to the UK as well as contact addresses for enthusiasts.

Copies of the Catalogue of Chaos are available free from: Frachaos, Higher Trengrove, Constantine, Falmouth, Cornwall TR11 5QR. Tel: (0326) 40973 (24hr answerphone)

RAG TRADE



Director of Marketing and Weightlifter Miller.

Not content with putting colour into word processing, New Horizons have gone into the rag trade. They are now not just marketing ProWrite (see review in this issue) but selling T shirts for a mere \$15, bearing their corporate logo and on the back the immortal words 'Prowrite - Advanced word processing for the Amiga'. Now that should get you some attention at your local disco. So, too, would Party Queen Debbie 'Miss Universe' Miller, New Horizon's Director of Marketing seen here modelling the designer shirt. What about a New Horizon's bikini, Debbie? (And to make that comment a little less apparently sexist, what about a photo of AUI's news editor in his boxer shorts? Ed.)

RC-500 GOLDEN IMAGE A500 RAM EXPANSION

A500 RAM Expansions? It has been said that everyone should have one! Golden Image have taken the message literally and have added the RC 500 512KB Expansion RAM card to their apparently evergrowing range of Amiga peripherals.

Like all other A500 expansion cards, the RC 500 fits in the underside connector on the Amiga, or on the main PCB inside the Checkmate A1500.

The PCB is bigger than many but it does have a few extra features which make it an attractive buy for Checkmate A1500 users.

The first is that it has an insulation sheet on its underside (solder side). This prevents possibility of short -circuits on the A500, and which is useful for the A1500. Another relevant feature for A500 and A1500 users alike, is that the disable/enable switch is not on the PCB, but on the end of an extension

cable. This eliminates the need for lifting the Amiga to flick the switch and will allow A1500 owners to switch off the extra memory.

The RC 500 is supplied with a battery-backup clock and retails at £47.22 RRP. Golden Image can be contacted on 081 518 5785.

10 MARKET PLACE
ST. ALBANS
HERTS AL13DG
TEL (0727) 56005/41396

Hobbyte

COMPUTING
ESTABLISHED 6 YEARS

THE GALLERY
ARNDAL CENTRE
LUTON, BEDS LU1 2PG
TEL (0582) 457195/411281



GAMES PACKS

BATPACK, FLIGHT OF FANTASY, SCREEN GEMS FULL AMIGA 500 PACK, PLUS: Batman Pack Software: Batman, F18 Interceptor, New Zealand Story, Deluxe Paint II
OR Flight of Fantasy software: F29 Retaliator, Rainbow Island, Escape from the Planet of the Robot Monsters, Deluxe Paint II
OR Screen Gems software: Shadow of the Beast II, Back to the Future II, Days of Thunder, Nightbreed, Deluxe Paint II
any one **£349** any two **£385** all three **£419**
ANY SOFTWARE UPGRADE PACK
for existing Amiga owners ----- **£39**

THE LOT!!

EVERYTHING YOU COULD EVER NEED!!
BATMAN, FLIGHT OF FANTASY OR SCREEN GEMS GAMES PACK AS LEFT, PLUS:
10 GREAT INDIVIDUALLY PACKAGED GAMES - phone to choose from our current SUPER list of 15, or leave it to us!
15 DISC HOBBYTE PD GREATS PACK, including Virus Killers, the BEST Star Trek Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database.
DUST COVER, 10 BLANK DISCS, 80 CAPACITY DISC BOX, MOUSE MAT, MICROSWITCH TURBO JOYSTICK **£399**

HUGE TURTLES PACK

BATMAN, FLIGHT OF FANTASY OR SCREEN GEMS GAMES PACK AS LEFT, PLUS: MIRRORSOFT'S TEENAGE MUTANT HERO TURTLES, STICKERS, TRANSFERS & POSTCARD
10 GREAT INDIVIDUALLY PACKAGED GAMES - phone to choose from our current SUPER list of 15, or leave it to us!
15 DISC HOBBYTE PD GREATS PACK, including Virus Killers, the BEST Star Trek Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database.
DUST COVER, 10 BLANK DISCS, 80 CAPACITY DISC BOX, MOUSE MAT, MICROSWITCH TURBO JOYSTICK **£419**

HOBBYTE EXCLUSIVE

ABSOLUTE BEGINNERS PACK

FULL AMIGA 500 PACK, PLUS:
POSTMAN PAT, SNAP, SNAKES AND LADDERS, LUDO FUN SCHOOL 2 AND FUN SCHOOL 3
(specify under 6 years, 6 to 8 years, or 8+ years) (specify under 5 years, 5 to 7 years, or 7+ years)
12 stunning UK educational games with beautiful pictures, exciting animation and music that help to develop number, word and other skills. Up to 6 skill levels. Conform to National Curriculum requirements.
HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)
HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Kylie Demo, Michael Jackson Demo, Flashbier, JOYSTICK **£369**
ABSOLUTE BEGINNERS SOFTWARE PACK for existing Amiga users **£49**

HOBBYTE EXCLUSIVE

FIRST STEPS

EXPANDED EDUCATIONAL/APPLICATIONS PACK FULL AMIGA 500 PACK, PLUS:
A501 512K RAM expansion
Lets Spell at Home, Music Mouse, Prowrite WP, InfoFile spreadsheet, Deluxe Paint II, Deluxe Print, Music Mouse, LOGO, Talking Turtle, BBC Emulator, 5 BBC programmes, 10 discs, DOs and DON'Ts poster, Resource File, In Pack Video, NAPE Booklet.
HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)
HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Kylie Demo, Michael Jackson Demo, Flashbier, JOYSTICK **£529**

CLASS OF THE 90S

EDUCATIONAL/APPLICATIONS PACK FULL AMIGA 500 PACK, PLUS:
A501 512K RAM expansion MIDI Interface, Deluxe Paint II, Superbase Personal, Maxiplan 500, Publisher's Choice, Dr T's MIDI Recording Studio, LOGO, BBC Emulator, 5 BBC programmes, 10 blank discs, mouse mat, disc wallet.
HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)
HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Kylie Demo, Michael Jackson Demo, Flashbier, JOYSTICK **£529**
CLASS OF THE 90S SOFTWARE UPGRADE PACK for existing Amiga owners **£195**



COMMODORE CDTV

VERY LIMITED STOCKS EXPECTED SOON, RESERVE YOURS NOW **£ - phone**

VIDEO GRAPHIC PACK

FULL AMIGA 500 PACK, PLUS:
Vidi-Amiga, Vidi-Chrome, Deluxe Paint II
15 DISC HOBBYTE PD GREATS PACK
including Virus Killers, the BEST Star Trek Emerald Eater, Bionics, Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database.
15 DISC HOBBYTE PD GRAPHICS GREATS, including demos -Coma, etc, clip art, TV and Video graphics, graphics utilities **£489**

B2000 OR 3000

B2000 BASE UNIT
B2000 WITH 2091/2094 40 MB
HARD DRIVE + EXTRA 2MB RAM
A3000 **CALL FOR PRICES**
AMIGA B2000 & 3000 -THE EXPERTS
CBM PREMIER DEALER
PHONE US LAST FOR BEST POSSIBLE DEALS

NO DEPOSIT CREDIT FACILITIES (UK mainland)
Credit terms at 34.8% APR (variable) can be arranged for purchases over £150, subject to status. Competitive leasing schemes are also available for businesses, including sole traders and partnerships. Just tel for written details and application form.
COMMODORE 1084S OR PHILLIPS 8833 COLOUR MONITOR, LEADS AND DUST COVER **£220** WITH ANY PACK
STAR LC 200 COLOUR PRINTER AND LEADS **£190** WITH ANY PACK

AMIGA 1500

Twin Floppy 1MB RAM, Mouse, expansion as B2000, 1084SD Monitor with: The Works Platinum database WP, Spreadsheet, Deluxe Paint III, Sim City, Populous, Their Finest Hour, Battlechess, A-Z of Computer Jargon, Get the most out of your Amiga, manuals and operating discs
15 DISC HOBBYTE PD GREATS PACK, including Virus Killers, the BEST Star Trek Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database. **£969**
WITH T.V. MODULATOR NO MONITOR **£769**

EXTRAS inc VAT

CBM 1084SD or Phillips 8833 Monitor, with leads ----- £227
A501 the Official CBM 512K RAM Expansion + Captive ----- £59
512K RAM expansion + dock ----- £39
Amiga 590 Hard drive + extra 1MB ----- £329
Amiga 590 Hard drive + extra 2MB ----- £369
PRINTERS ex VAT All UK versions
Star LC10 ----- £149
Star LC10 Mk II ----- £169
Star LC10 Colour ----- £189
Star LC200 Colour ----- £195
Star LC 24-10 ----- £229
Star LC 24-200 ----- £239
Panasonic 1180 ----- £149
Panasonic 1124 ----- £239
Star XB 24-10 ----- £459
Citizen 1200 ----- £135
Citizen Swift 24 ----- £299
Olivetti PG306 laser ----- £869
Olivetti PG306 laser postscript ----- £1649

Full Amiga 500 pack

All A500s feature FAT AGNUS, and are full and complete UK spec. packs with mouse, software, leads, modulator (except where ordered with a monitor) and documentation. Beware of imports which (CBM(UK)) will not support or upgrade with enhanced chip set

COMMODORE PREMIER DEALER

Hobbyte proudly announce this highest CBM accolade, awarded to only the top few dozen CBM dealers offering the best in expertise and support.



ORDERING :

TELESALES NO: (0727) 56005
Next day delivery for credit card orders placed before 4.00pm subject to availability. Alternatively send cheque, postal order, bankers draft or official order (PLCs, Education and Government bodies only) to: Dept. AUI, Hobbyte Computer Centre, 10 Market Place, St. Albans, Herts AL13 5DG. Please allow 7 working days for cheque clearance. Subject to availability, despatch is normally within 24 hours of receipt of cleared payment.
DELIVERY CHARGES: UK Mainland (not Highlands)
Small consumables & software items Despatched by post, please check charges when ordering
Other items, except lasers Next day courier service, £10 per box
Laser printers Next day courier service, £17.50
Offshore and Highlands Normal rate plus £20 + VAT per box
In addition we offer the following express services:
Saturday deliveries Normal rate plus £10 + VAT surcharge
7am to 9am next day Normal rate plus £10 + VAT surcharge

CALLERS WELCOME AT OUR BRANCHES
open 9-5.30, Monday to Saturday and 10 to 4.00 Sunday

All prices, except where stated are inc. VAT. Prices are subject to change without notice. £20.00

TELE-ORDER (0727) 56005

ProWrite 3.1.1

John Walker tests a new version of an old favourite

ProWrite has long been the best of the Amiga's graphics-orientated word processors. What has given it a great advantage in the past over its main rivals - KindWords, VizaWrite Desktop and Pen Pal - is the fact that you can type at speed, and still see what you're typing on the screen, even with documents of 5,000 words or more.

The latest version increases its pre-eminence by adding enhancements that take it closer to a page layout or desktop publishing program. It is not so much a word processor now, as a manuscript processor.

The main improvements include:

Multiple columns

Better use of a dot-matrix

printer's built-in fonts

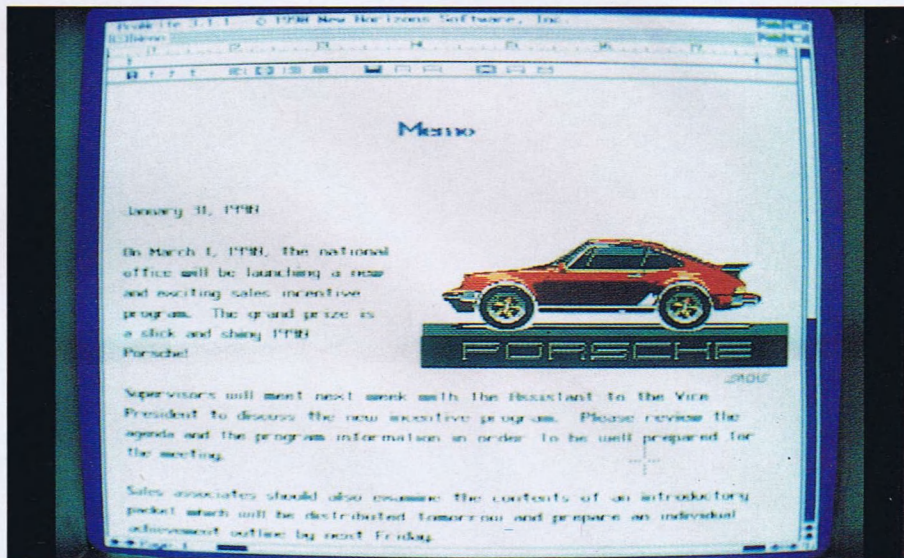
Better support for colour graphics

An extensive thesaurus together

with a 100,000 word spell

checker

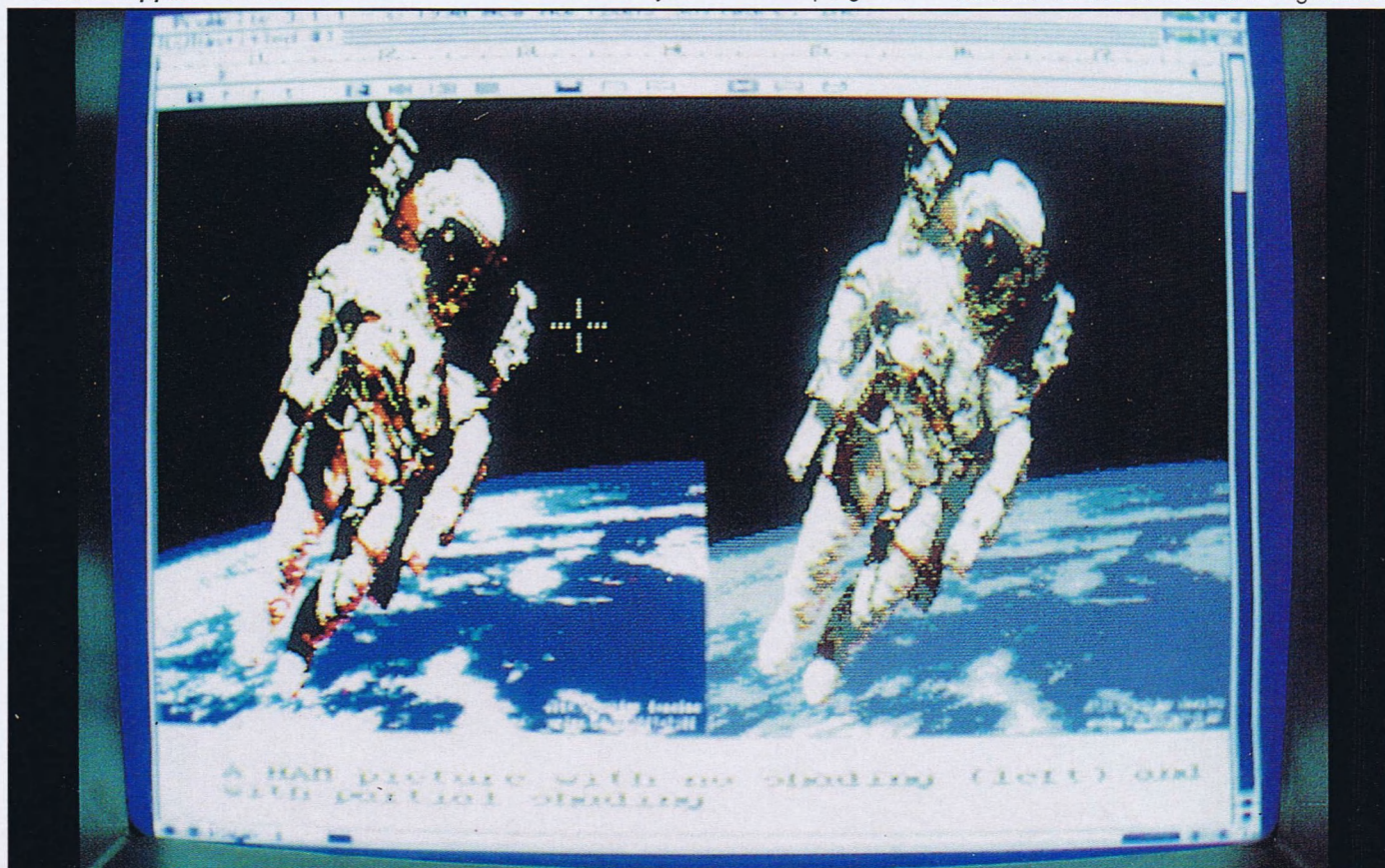
ARexx support for macros and



so that it can be linked to other programs

Even before you load the program,

ProWrite 3.0 looks classy. It is now packaged in an elegant, marbled slipcase that contains its two disks and a ringbacked



196-page manual. The image is only slightly dented by the fact that there are also additional loose sheets containing amendments to the manual that take into account the latest changes.

ProWrite 3.0 will run on any Amiga with at least 1 megabyte of RAM and two drives. It is compatible with Workbench 1.2 onwards, including the new Workbench 2.0. You will, of course, need a printer to take advantage of the program - and a colour printer will enable you to use all of its facilities.

One of its two disks contains a standard 1.3 Workbench together with some special fonts, a System Mover to make it easy to move fonts and printer drivers from one disk to another, and a Convert program that will convert Scribble!, Textcraft and TextPro files to ProWrite format while maintaining most of their formatting. Its time Convert was extended to include other word processors, such as KindWords and Pen Pal.

The second disk contains the ProWrite program itself, together with its dictionary and thesaurus. Neither is protected and may be easily transferred to hard disk.

ProWrite's multiple column feature, together with its improved handling of graphics, make it suitable for the production of simple newsletters or reports. Soon, too, with the aid of an enhanced ProScript program, you will be able to print to a PostScript laser printer for the highest possible quality of output.

"If you need to add a space in one column without jumping to the opposite column, you can use a soft Return by pressing the ALT key and the Space-bar"

You can have up to five columns of equal size to a page, with their width, the space between them, and the size of the margins being set from a special requester. In practice, two columns work best. The reason is that narrower columns look too ragged, due to the program's lack of automatic hyphenation - the breaking of words of more than one syllable at the end of lines.

Without hyphenation, narrow columns may contain no more than two words. It is possible to go through the text manually putting hyphens in words so that break over two lines, but this can be tedious. With columns, too, ragged right justification looks best. Having lines of text fully justified to left and right margins merely emphasises some unsightly gaps between words.

Columns come in two sorts - newspaper, in which text flows from the bottom of one long column to the top of the next and side-by-side, in which text goes from the

bottom of one paragraph to the top of the paragraph opposite it so that their first lines align.

This side-by-side column feature will be a boon to one select group - theatrical, TV or movie scriptwriters who need to be able to put the names of characters and description of actions or camera movements side-by-side with their dialogue. The cursor moves from one column to the next with the press of the RETURN key. If you need to add a space in one column without jumping to the opposite column, you can use a soft Return by pressing the ALT key and the Space-bar.

"The latest version increases its pre-eminence by adding enhancements that take it closer to a page layout or desktop publishing program"

There are two ways of printing from ProWrite: you can do a graphics dump, which will transfer what you see on the screen to paper or you can use your printer's own fonts. The disadvantage of the graphics dump, apart from its slowness, is that bitmapped fonts tend to look ragged when printed. ProWrite does have a smoothing option which will improve the printed appearance of bitmapped fonts, but the results may still be jagged.

With earlier versions of ProWrite, you could only use one of your printer's fonts in a document. That has all changed. You can now print NLQ text with Pica, Elite, Condensed or wide fonts at the same time as you print your graphics, thus obtaining the best quality of output available, printed at the fastest speed.

You can also scale the size of your printout, from 25 to 400 per cent. This enables you not only to produce large posters or banners - since you can print in upright or landscape orientation - but to achieve a higher resolution of output from bitmaps by setting a reduction value of 50 per cent or more, selecting a higher print density and using double-sized (or greater) fonts and graphics.

So that what you see on screen will be what you get when you print using NLQ fonts, ProWrite comes with special screen fonts that match printer fonts as closely as possible. The match is not exact, and the program inserts extra spaces between words to keep lines to the right length. An Optimal Spacing option minimises these gaps, although on occasion they can look ugly.

Colour printing is improved. ProWrite can handle any image in standard IFF format, including HAM with its 4096 colours. It cannot reproduce that number of

colours, any more than your average printer can. Instead, it uses an optional system of dithering to suggest different shades of the same colour. The graphics are shown on screen with their dithering so that you can see what they will look like when printed.

You have the choice of no dithering, or of four or sixteen levels of shading for each colour - or you can have a colour picture converted to grey shades if you are using a monochrome printer. Pictures can be re-sized on the page, a technique that works best with those that have no shading.

ProWrite's enhanced spelling checker needs to be loaded into RAM for efficiency. You can have it check each word as you type, which does not work well if you run it from floppy disc as it accesses the disc constantly. From RAM, the process is instantaneous. If the checker does not recognise a word it will either flash the screen or beep or both.

You can then click on the spelling checker's Look Up button to obtain a list of suggested alternatives. You can, of course, also check individual words, part of your text, or the whole document in one go. The checker is reasonably quick, though not as fast as in previous versions of ProWrite, possibly because it now contains more words.

It took 30 seconds to check a 4,000 word document in which only the last word was incorrectly spelt, which is 10 seconds faster than Pen Pal though slower than WordPerfect.

"So that what you see on screen will be what you get when you print using NLQ fonts, ProWrite comes with special screen fonts that match printer fonts as closely as possible"

The dictionary is an big one, including not only rarely used words, such as "thyrsi", but even one - "gond" - that I can't find in any other dictionary. You can also create your own user dictionary, which is saved as a text file so that it can be edited.

The program's thesaurus also works best from RAM and offers a wide choice of words. Selecting any word in its list will provide you with a further set of synonyms. Using it often requires you to type the word for which you are seeking alternatives. If, for example, you select "launching" from your text, the thesaurus will report that it knows no such word. You'll need to type "launch", which it will recognise.

ProWrite now supports ARexx, the macro language that forms part of Workbench 2.0 and which is also available on

its own. Indeed, it is one of the minor limitations of the program that its macros depend upon ARexx. Two example macros are included with the program - one will transpose mistyped letters, changing "hte" to "the", and the other will perform simple calculations.

Without ARexx, though, you cannot automate any of the program's functions. Even with ARexx you can't automate all, since many of ProWrite's functions, such as saving text, bring up requesters which have to be filled in manually. It would be a help if the program, like many other word processors, could remember and play back sequences of key-presses to make certain actions automatic.

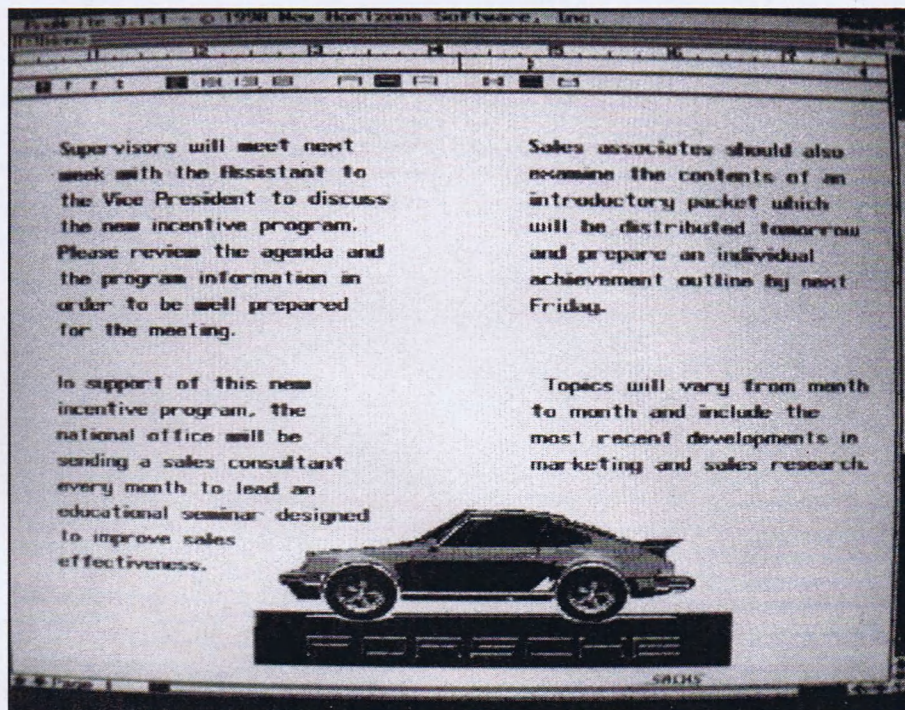
"You can not only discover the number of words in a document, but also the number of characters, lines, pages, paragraphs and pictures, together with the average word and sentence length"

In most other respects, though, ProWrite is user-friendly, allowing you to customise its appearance and functions. You can, for example, change the screen colours and turn off the default flashing cursor, which I find an irritation. Many of the options on its menus have keyboard equivalents. Some actions, such as opening a document, printing, or editing a header or a footer, can be carried out by pressing a function key. Others, such as selecting a word or a sentence can be worked by clicking the mouse button two or three times.

You can not only discover the number of words in a document, but also the number of characters, lines, pages, paragraphs and pictures, together with the average word and sentence length and an estimate of its readability, based on US grade levels. (This may not work perfectly. In a document where I had not left a space after full stops, it decided that my average sentence length was more than 400 words and that a grade level of 317 would be required to understand it!)

You not only have headers and footers, but chose between five different styles of numbering the pages, two styles of inserting the time into your document and six ways of adding the date.

There is also an Undo function that will reverse your last action, such as deleting text, providing it is chosen immediately after the action you want to change. And New Horizons has taken the first step in equipping ProWrite with style sheets or paragraph tags such as are found on high-end desktop publishing programs.



It is a small step, but a beginning. You can now save one font, style attribute and colour and one format - margins, tab stops, alignment and paragraph spacing - and apply them to selected characters or paragraphs. Another useful function is the ability to change words into upper, lower or mixed case - in the latter, just the first letter is initialised. You can sort paragraphs in ascending or descending alphabetical order.

ProWrite allows up to ten documents to be open at any one time - and their length is dependent only on the amount of available memory. All open documents are listed on a menu and you can move from one to the other simply by clicking on a name. It, of course, encompasses all the usual word processing functions, from mail merge to cutting and pasting, and searching and replacing, text.

The latest enhancement is a Speak command that makes use of the Amiga's built-in speech synthesiser to speak all or selected parts of your document in a user-definable voice. It can be useful to those with poor sight or for proof-reading a document, though it is a minor nuisance that the on-screen requester that remains while speech continues obscures part of the document.

ProWrite's display is uncluttered. There are scroll bars along the right-hand side and bottom of the screen and a ruler, which can show inches or centimetres, along the top. If you prefer, the ruler can be invisible. But it is useful because you can carry out certain functions, such as changing the justification and line or paragraph spacing of your document, by clicking on icons within it.

New Horizons also publishes two disks of ProFonts, well-designed bitmapped fonts for use with the program, which are a great improvement over the Amiga's standard fonts. Also available will be French and German dictionaries, each containing more than 85,000 words.

The main disappointment at the moment is that ProScript, New Horizons' PostScript printer driver, is not fully compatible with ProWrite 3.0 and will not support such features as multiple columns. A new version of ProScript is promised, although it might have been better to have had PostScript compatibility incorporated in the program itself.

"ProWrite comes nearer to perfection than most word processors"

But never mind. Nothing is perfect. The joy is that ProWrite comes nearer to perfection than most word processors, particularly those that incorporate graphics. And it continues to improve significantly, while still being easy to use. If only it supported that new Amiga standard, AGFA Compugraphic outline fonts, it would be the ideal word processor for all occasions.

J.W.

Price: ?

Contact: New Horizons Software, PO Box 43167, Austin, TX 78745. Tel: (0101) 512 328 66650

SOFTVILLE
COMPUTER SUPPLIES
Unit 5, Stratfield Park,
Electra Avenue, Watlington,
Hants. PO7 7XN
Tel: 0705 266509 Fax: 0705 251884

Prices (each disk)
1 to 5 disks - £3 6 to 9 disks - £2.75
10 or more - £2.50
Buy ten choose another FREE
Choose any 5 disks, get 5 blanks, labels
and a library case for only £16.50
ask for Starter Pack

These are brief descriptions, disks may contain much more.

GAMES

UGAME1 - COSMAROIDS, ROLLERBALL, ORBIT 3D & LADYBUG
UGAME2 - FLASCHBER, 250 frantic levels!
UGAME3 - LINGO, BALLY, NIGHTWORKS & YOUPI
SOF44 - PUZZLE PRO, cuts IFF pictures, you put it together!
SOF68 - CLASSIC card/board games including CRIBBAGE
SOF69 - CLASSIC arcade/board games including MISSION COMMAND
SOF78 - PACMAN, the all time classic
SOF117 - EMPIRE, GRAVWARS, HANOL, JACKLAND etc.
SOF118 - GRAVATTACK, BULLRUN, WORLD etc.
SOF186 - LARIN (the giant) ADVENTURE
SOF396 - TENNIS, great shareware PRG (Imeg)
SOF501 - (2disks £5) STARTRK, brilliant PD version, (Imeg, 2drives)
SOF521 - PSEUDO COP, great game from Pseudo-Ops
SOF530 - SkyFight, Bleed, Shoutout (not v1.37)
FF357 - EMPIRE, new version multi-player game, Keyboard or modem
FF347 - DRIP, arcade style game, dodge the pipes etc. Good!
FF320 - AMIOMEGA, similar to Hack but more complex.
FF312 - CHINACHALLENGE, shanghai game, MOONBASE lunar lander.
FF259 - Escape From Jovi, fast action game, multi-levels.

PICTURES

SOF16 - 18 digitised HAM pictures, classics
SOF20 - NASA DIG-VIEW slideshow, 14 quality pictures.
SOF79 - SAM FOX SLIDESHOW, in her usual state of dress!
SOF90 - Vallengo's FANTASY PICTURES - Vol3
SOF108 - PAGE3 PICTURES, Selection of good digitised pics.
SOF119 - ADULT GRAPHICS, 9 high-res pic's
SOF124 - PLAYBOY slideshow!
SOF125 - PLAYBOY slideshow!
SOF127 - Pictorial tribute to PATRICK NAGEL.
SOF143 - Great slideshow of hand drawn pic's.
SOF145 - FANTASY type pictures, of a lady being rescued?
SOF147 - FANTASY pictures, these are the BEST you'll see!
SOF149 - THE ADVENTURE CONTINUES, slideshow of the Space Shuttle
SOF182 - BRASSART pictures arranged in a slideshow.
SOF183 - BRASSART pictures as above.
SOF197 - BARBARIAN ladies, fabulously drawn
SOF385 - JOE Slideshow2, over 20 pictures and great tune.
SOF454 - TAG Slideshow with familiar theme
FF196 - the absolute BEST scanned pic's you'll ever see!

LANGUAGES

FF351 - PDC, publicly distributable C, complete
FF347 - CURSOR, 3pass AmigaBASIC compiler
FF340 - NORTHG, C environment based on SoroBnC.
FF339 - PCQ, self compiling PASCAL compiler
FF337 - QMANUAL, complete C manual & 70 source examples.
FF314 - A68K, assembler, ZC, C compiler
FF247 - ASSEMTOOLS, 140 routines for assembly programmers.
FF140 - Stonybrook PROLOG - needs both disks (below)
FF141 - Disk two of above.
SOF184 - MODULA2 compiler, complete with documentation.
SOF549 - ARP 13, complete with documentation.
APDC25 - FORTH, MODULA2, LISP & LOGO

PUBLIC DOMAIN & SHAREWARE

for the AMIGA range (ATARI ST, PC also available)

1. Huge selection, over 2000 disks
2. Over Four Years Experience
3. Same day service (Mail & phone/fax before 12am)
4. Pay by Access, Visa, Cheque, PO or Cash
5. Order by Phone, Mail or Fax
6. Official/Government orders accepted
7. 90 page catalogue FREE
8. Professional Service, ring for advice!

Catalogue free with order, please ask or £1 each!

MUSIC & MIDI

SOF10 - MIDI1, MIDI2, PAN12, GZ101, CZL + DMCS MIDI songs
SOF11 - Hundreds of new instruments for GZ synths.
SOF12 - 40 SOUND EFFECTS plus a player program.
SOF105 - POPHITS + pictures of Mel&Kim, PetShopBoys, Madonna etc.
SOF106 - AMIGASOUNDS 2 by A.Starr, 3 tunes.
SOF107 - CROCKETTS THEME, great sample
SOF138 - MIAMI VICE - DIGITISED, brilliant!
SOF146 - 5 more by A.Starr, 18 minutes of brilliance.
SOF148 - Best of SONIX, Tubular Bells, Its a Sin.
SOF152 - Amiga POWERMUSIC No.1, ten great songs.
SOF155 - SOUNDMACHINE 123 on one disk!
SOF160 - GRAND MIX sampled by the Future Bros.
SOF225 - KYLIE MINOGUE and LOCOMOTION
FF349 - MED V2, Musical editor - very good indeed!

CLASSIC DEMONSTRATIONS

SOF3 - Fred the Baker, Roses Flower Shop, classics!
SOF7 - THE PROBE demo, so good was on TV!
SOF33 - NEMESIS, HBHILL, Viacom, Wavebench etc.
SOF34 - ROCKER, KAHNANKAS, BERSERK
SOF40 - WALKING LEGS, brilliantly done!
SOF54 - (2disks/drives £5) NEWTEK, original (Imeg)
SOF56 - DOGS DEMON demo, original but good!
SOF70 - BOING!, SPROING!, JUGGLER, TILT etc. etc.
SOF154 - EL GATO, RED BARON, FSW (Imeg)
SOF219 - 2 disk, 2meg vers the WALKER demo (E5)
SOF254 - Imeg version of the classic WALKER demo
SOF255 - Imeg version of WALKER2, the follow up.
SOF414 - PUGGS IN SPACE, cute anim' well done
SOF546 - FRACTAL FLIGHT, brilliant animation, (Imeg)
SOF467 - NEWTEK demo reek3, new production (2disks/drives, Imeg E5)

SOUNDTRACKER

SOF458 - New 8 Track Soundtracker
SOF474 - NOISETRACKER v1+ plus documentation.
SOF262 - SOUNDTRACKER vers 12.3 & 4 plus instructions & 40 songs plus MEGATRAX (2disks, E5)
SOF384 - (3disks - £6) ST-02 to ST-04 instruments
SOF433 - Complete SOUNDTRACKER set ST-01 to ST-08 (8disks £16)
SOF434 - Alternative ST-00 disk contains GMC, noise v1, Doc v2! etc. etc.

UTILITIES - TEXT HANDLERS

FF359 - TEXTPLUS word processor
FF328 - ANALYTICALC for numerical analysis, includes spreadsheet etc.
SOF500 - 7disk set of CLIP ART various (E15)
FF316 - AMIGAFOX, text processor/ graphic facilities.
FF228 - JAZZBENCH multi-tasking workbench.
FF210 - CALC, scientific/programmer calculator. Loaded with features.
APDC23 - Word processor, 2 spell checkers, 4 databases.
SOF15 - CLIP ART DISK for pagesetter
SOF17 - Ray Tracing Construction Set
SOF21 - CLIP ART DISKS for Pagesetter
PAN48 - WORDWRITING word processor
SOF123 - MCAQ, amiga CAD program
SOF126 - UEDIT, manipulate your files in comfort!
SOF169 - Cosmopolitan FONTS for Dpaint
SOF170 - FANCY FONTS as above
SOF171 - PUBLISHERS FONTS as above
SOF172 - VARIOUS FONTS as above
SOF191 - ARRENDER v3 ray trace package
SOF240 - CHET SOLACE DISK, 26 utilities on one disk!

Plus we have 11 disks of UGA utilities, full of all those 'hard to get' utilities.

plus we have OVER 400 DISKS FULL of demo's, the largest collection around.

PLUS we stock the FULL RANGE of FRED FISH disks, + A.PDC, Slipped Disk, FAUIG, TBAG collections and are EXCLUSIVE distributors of the famous United Graphic Artists collection.

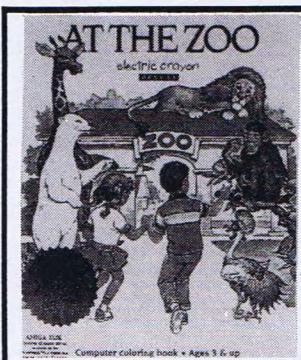
If you can't see it here just RING AND ASK!



ESP
SOFTWARE



EDUCATIONAL SECTION



At The Zoo - Animal Colouring book with extensive printer facilities to do banners, calendars and sideways prints. Great sound effects. Age 3+. £24.95

World Atlas - This is an excellent computer based atlas. With over 255 high quality maps it is bound to improve your geography knowledge. Ages 8+ £34.95

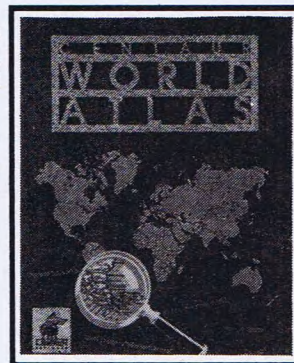
FUN SCHOOL 3

£19.95

Contact us for further details

We Have Over 70 Top Class Educational Programs For The Amiga & Atari ST.

All Ages Covered From 3 To Adult.
Contact Us Now For Your Free Catalogue



PROFESSIONAL SECTION

BUSINESS		UTILITIES	
Advantage	74.95	AMAX V2	119.95
B Graphics	99.95	Amiga Vision	69.95
Easy Ledgers	139.95	Diskmaster	34.95
Gold Disk Office	149.95	Power Windows V2.5	49.95
Maxiplan Plus	99.95	Superback	38.95
Microfiche Filer Plus	109.95	VIDEO	
Securities Analyst	49.95	Art Department	69.95
Service Ind. Acc.	239.95	Broadcast Titrer V2	199.95
Superbase Prof. 3	149.95	Frame Grabber 256 *	559.95
CAD.		Pro Fills	28.95
Draw 2000 *	149.95	Pro Video Plus Fonts	79.95
Intro CAD Plus	79.95	Roll Em	99.95
Ultra Design	219.95	Superpic	498.95
X CAD Designer *	77.95	TV Text Professional	89.95
X CAD Professional *	304.95	Title Page	124.95
DRAWING / GRAPHICS etc.		Video Effects 3D	114.95
3D Professional	299.95	Video Titrer	69.95
3D Text Animator	34.95	Viva *	209.95
Animate 3D	92.95	WORD PROCESSORS	
Animation Studio Disney	79.95	Pen Pal	79.95
Cando Inovatools	39.95	Pro Write V3.0	94.95
Design 3D *	54.95	Word Perfect 4.1	149.95
Elan Performer 2	89.95	Word Perfect Library	79.95
Headlines II *	49.95		
Imagine	199.95		
Mega Paint	149.95		
Modeller 3D	59.95		
Pagerender 3D	77.95		
Pixel 3D	64.95		
Sculpt 4D Jr	83.95		
Sculpt Animate 4D *	309.95		
Sculpt 3D Designs	23.95		
Turbo Silver	94.95		
Videoscape 3D *	109.95		
Vista	59.95		
D.T.P.			
Outline Fonts	94.95		
Pagestream Fonts	27.95		
Pagestream V2 *	119.95		
Pro Draw V2	94.95		
Pro Page Templates	33.95		
Pro Page Ultraforms	24.95		
Pro Page V1.3 *	154.95		
MUSIC			
Audiomaster III	69.95		
Bars & Pipes	174.95		
B&P Music Box B	39.95		
Copyst Professional	174.95		
K.C.S V3	139.95		

* 4Mb * 4Mb * 4Mb * 4Mb * 4Mb * 4Mb * 4Mb *

BaseBoard 4.0 is the latest high tech memory expansion board available for the A500. Fits in the A501 slot. Increase the memory of your Amiga to 4.5Mb in steps of 512K. **NO SOLDERING**. Full 1 year Warranty. Clock Included.

Incredible Prices

Unpopulated	£89.95
512K Populated	£115.95
1Mb Populated	£141.95
1.5Mb Populated	£167.95
2Mb Populated	£193.95
2.5Mb Populated	£219.95
3Mb Populated	£245.95
3.5Mb Populated	£271.95
4Mb Populated	£297.95

The above list of Professional Software is only a selection of the range available. Please phone for a full price list or individual quotes.

All prices quoted are inclusive VAT & UK Post. E. & O.E. * = 1Mb+

Educational & Serious Program Specialists

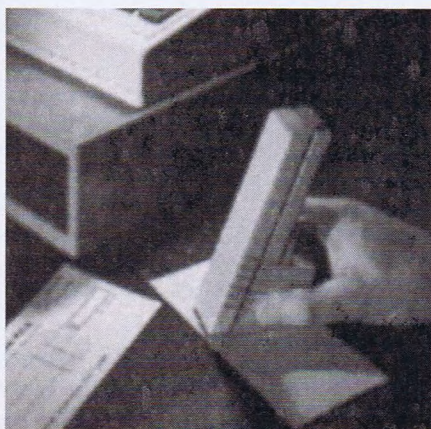
(0702) 600557 ESP SOFTWARE
24 Hour Service
Access & Visa Accepted
FAX (0702) 613747
32C Southchurch Road
Southend-on-Sea
Essex SS1 2ND

PRINTAPEN 5000

Zen comes to the Amiga? It is the sight - not the sound - of one hand printing that Pat Kelly found fascinating

Ever since the launch of the Amiga A1000 way back in 1985 many third party developers have created interesting pieces of hardware and software. A lot of these products expanded the Amiga dimension and now Printapen 5000 hopes to do likewise under the guise as "the world's first hand-held inkjet printer".

The Printapen is supplied with a "dongle" which plugs into the Amiga's serial port. This "dongle" has a RS232 input for the Printapen and a power jack input, through which the mandatory power to the unit is supplied. A 5 Vdc mains adaptor is supplied as an optional extra, although it is needed to supply power. When the power jack is inserted into the side of the "dongle" it protrudes leftward into the path of the disk drive port on the A500, but does not effect the A1000 and the A2000 as only the phone sound jacks are positioned on the left side of the serial port. I suppose that A500 2nd drive owners will want to partake in some design change and reposition the jack on the top, as opposed to the side of the "dongle".



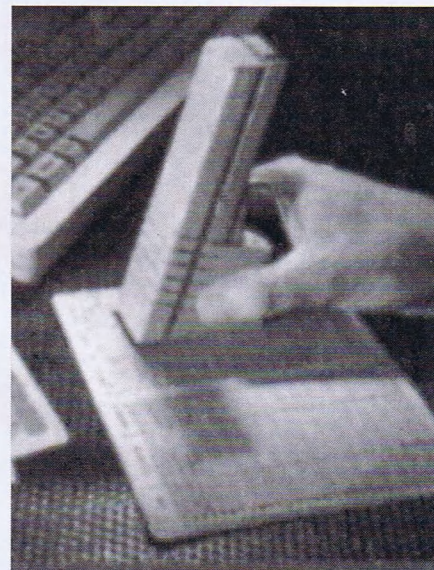
The Printapen uses the serial RS232 connector so this has to be taken into effect when setting up the Amiga preferences, or alternatively while programming. Once that the serial port has been chosen for printer output, from the workbench preferences, Printapen will respond to printer output commands with only one small difference. Whereas a normal printer will start printing, unless it is off-line, the Printapen's "ready" LED will flash, highlighting that the unit has text to output. The print is activated by pressing on a button on the unit while running the printapen along a paper-based surface, hopefully in a straight line. The end-of-line signal stops the print until the user repositions the "pen" for the next line of print.

"Whereas a normal printer will start printing the Printapen's 'ready' LED will flash, highlighting that the unit has text to output"

Printapen's biggest attribute must be that it reaches other parts that other printers cannot reach. It is perfect for producing neat and tidy printouts for filofax pages, wall planners, desk planners, order forms, and address labels. It can also print on curved surfaces and twisty lines - only Printapen can do this! - in their advertisements they show it working on the curvy body of a girl. We did not prove their claim. This is what Printapen has been designed for as it cannot print long documents, but only about several lines, a task which it will perform quite easily.

There are two fonts available that can be selected from ESCape character controls. These fonts allow for normal and condensed printing and the print quality is of Near Letter Quality standard.

The Printapen, like normal printers, is controlled via ESCape characters and as such can be controlled from application programmes. This is where the main use of the "pen" may be. Users can write application software for specific useage of the "pen", such as serialisation of products.



The base of the "pen" measures approximately 2 inches by 1 inch and comprises the printhead and a "tracking" roller which measures distance travelled. The character printed will only be output relative to the distance travelled and therefore fluctuations in travel speed do not effect the output quality. What does effect the print is the inability to keep the unit travelling along a straight line when required, but any straight edge, such as a ruler, will dispel this slight flaw. The user of the unit will not be printing very long lines, so small irregularities in straightness may not be a problem, it may even be desired.

The ink is supplied via the HP inkjet reservoir in which is a refillable unit and is common in a lot of the HP series of printers and, so, should not be too difficult or expensive to replace.

At £350 the Printapen will not be the perfect peripheral for the normal Amiga user. I see it more for commercial use for corporate business users, probably not unlike companies such as Marks & Spencers, who have found very useful employment for the Psion Organiser within its salesfloor organisation and could possibly do the same for this neat device.

P.K.

Price: £343.00

Contact:

Oyster, Fair Oak House, Church Road, Newport, Gwent. NP9 7EJ.

Telephone: 0633 266726

Facsimile: 0633 215209

RETURN THE COUPON FOR FREE COLOUR BROCHURES!

NEW! - AMIGA PACK

Commodore A500
Flight Of Fantasy

£399

INC VAT



A500 BATMAN PACK



The Commodore A500 Batman Pack must surely rank as one of the most popular computer packs ever! The pack features the Commodore Amiga 500 computer with mouse controller and TV modulator, plus four top software titles. The software includes: 'Batman The Movie' - Rid Gotham City of the cunning joker, in Ocean's top selling title based on the blockbuster Batman film; 'New Zealand Story' - high quality conversion of the leading arcade game; 'Interceptor' - Dogfight with two F-16's in this leading flight simulator; 'Deluxe Paint II' - top quality Amiga graphics package which set the standard for others to follow. Return the coupon for further details.

PACK INCLUDES:

A500 Computer & Mouse	£399.99
A520 TV Modulator	£24.99
Batman The Movie	£24.95
New Zealand Story	£24.95
Interceptor	£24.95
Deluxe Paint II	£49.95

TOTAL RRP: £549.78

Less Pack Saving: £150.78

PACK PRICE: £399.00

£399 INC VAT

AMIGA 2000



For the more serious or professional applications user, Commodore have a selection of systems based around the expandable Amiga 2000, at prices from £1295+VAT. The A2000 features a full 1Mb RAM (expandable to 9Mb), 9 system expansion slots, plus IBM compatibility with the use of PC-XT or PC-AT bridgeboards. Complete and return the coupon, putting a tick in the A2000 box, for details of A2000 computer systems.

£1295

+VAT= £1489.25

FLIGHT OF FANTASY

Flight of Fantasy is the very latest Amiga 500 pack from Commodore, featuring BRAND NEW software releases, to make this the most spectacular A500 pack ever! The pack features the Amiga 500 computer with mouse controller and TV modulator, as well as four top software titles. These include the following:

DELUXE PAINT II:

The high quality graphics program that set the standard for other Amiga art packages. Deluxe Paint II includes powerful, easy to use tools that bring out the artist in you. Create masterpieces, presentations, 3D perspectives or just doodle.

ESCAPE / ROBOT MONSTERS:

Here's something completely different - a science fiction story with comic book style graphics. Our heroes Jake and Duke are on the Planet X rescuing Humans who have been captured by the Robot Monsters and forced to create an evil Robot Army to DESTROY EARTH! Jake and Duke fight their way through hordes of evil Robots to help the Humans escape.

RAINBOW ISLANDS:

Slip on your magic shoes, practise throwing a rainbow and you're ready to go island hopping. From the island of Doh to Monster Island, you will encounter Doh himself, stinging insects, lethal combat machines, mechanical assailants, the formidable beings of legend and folklore. Finally enter the world of darkness and its inhabitants.

F29 RETALIATOR:

The ultimate in flight simulation with a choice of two aircraft and four battle environments with dozens of different tactical missions. Aerial combat, strategic bombings, interactive ground based battles, seagang carriers... the list of features is endless. Real time cockpit displays, including 'true radar' enhance the realistic feel of this stunning simulation.

PACK INCLUDES:

A500 Computer & Mouse	£399.99
A520 TV Modulator	£24.99
Deluxe Paint II	£49.95
Escape/Robot Monsters	£19.99
Rainbow Islands	£24.95
F29 Retaliator	£24.95

TOTAL RRP: £544.82

Less Pack Saving: £145.82

PACK PRICE: £399.00

£399 INC VAT

FOR FURTHER DETAILS OF THE AMIGA RANGE, COMPLETE THE COUPON AND RETURN IT TO SILICA SHOP
THE UK's No1 AMIGA SPECIALISTS

SILICA SHOP OFFER YOU

FREE OVERNIGHT COURIER DELIVERY: On all hardware orders shipped in the UK.
TECHNICAL SUPPORT HELPLINE: Team of Amiga technical experts at your service.
PRICE MATCH: We normally match competitors on a "Same product - Same price" basis.
ESTABLISHED 12 YEARS: Proven track record in professional computer sales.
£13m TURNOVER (with 60 staff): Solid and reliable with maintained growth.
BUSINESS/EDUCATION/GOVERNMENT: Volume discounts available for large orders.
SHOWROOMS: Demonstration and training facilities at our London & Sidcup branches.
THE FULL STOCK RANGE: All of your Amiga requirements from one supplier.
FREE CATALOGUES: Will be mailed to you with offers and software/peripheral details.
PAYMENT: By cash, cheque and all major credit cards.
CREDIT PAYMENT TERMS: Silica is licensed credit brokers - return coupon for details.

Before you decide when to buy your new Amiga computer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your Amiga, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new products? At Silica Shop, we ensure that you will have nothing to worry about. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Shop Service".

RETURN THE COUPON NOW FOR
FREE BROCHURES

**SILICA
SHOP**



MAIL ORDER:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX	Tel: 081-309 1111
Order Lines Open: Mon-Sat 9.00am-6.00pm	No Late Night Opening	Fax No: 081-308 0608
LONDON SHOP:	52 Tottenham Court Road, London, W1P 0BA	Tel: 071-580 4000
Opening Hours: Mon-Sat 9.30am-6.00pm	Late Night: Thursday until 8pm	Fax No: 071-323 4737
SIDCUP SHOP:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX	Tel: 081-302 8811
Opening Hours: Mon-Sat 9.00am-5.30pm	Late Night: Friday until 7pm	Fax No: 081-309 0017
BUSINESS/EDUCATION:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX	Tel: 081-308 0888
Order Lines Open: Mon-Fri 9.00am-6.00pm	Closed on Saturdays	Fax No: 081-308 0608

To: Silica Systems Ltd, Dept. A.U.I. 0291-32, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND INFORMATION ON THE AMIGA

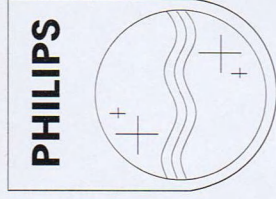
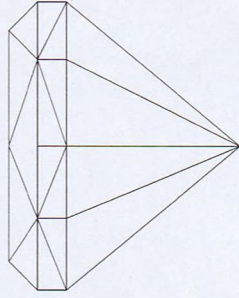
Mr/Mrs/Ms: Initials: Surname:

Address:

Postcode: Tel:

Which computer(s), if any, do you own? A2000 ☐

E&OE - Advertised prices and specifications may change - please return the coupon for the latest information.



COMPUTERS FOR BUSINESS

At DIAMOND we can provide you with expert advice on all your business requirements. We always have a large range of computers and software in stock. In addition to our desktop range we also carry a wide choice of laptops and personal organisers.

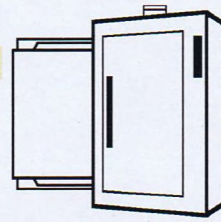


PACK

AMIGA 500

Screen Gems Pack

- * Kindwords W/P
 - * 512K RAM board Extra
 - * Philips 8833 Mk II Monitor
 - * STAR LC200
- Connecting Lead



£799 INC VAT



PACK

AMIGA 500

Screen Gems Pack

PLUS

HOME OFFICE

- * Integrated Word processor
- * Desk Top Publishing
- * Spreadsheet
- * Database

AND

NEW 24 pin STAR 24/200
colour printer

OR

SWIFT 24 colour printer

PLUS

512K RAM Board

* Philips 8833 Mk II Monitor

£899.00 INC VAT



PACK

A590 with 2Mb RAM

20Mb Hard Disk

WITH

2Mb RAM

- * 20 FREE 3.5" disks
- * 80 Disk Capacity, Lockable
Disk Box

£339.00 INC VAT

A590 0k RAM £269.00 INC VAT

512K RAM £299.00 INC VAT

1Mb RAM £325.00 INC VAT

SPECIAL OFFER

AMIGA 1500
Dual Drive B200

&

1084S Colour Monitor

With Sim City, Their finest Hour and the
Platinum Editor Works.

Your AMIGA 500 is worth over £800.00!!!
when you part exchange it for a B2000
with an autoboot hard disk.

CALL a DIAMOND store for details.

AMIGA 2000 from £499.00 when you
part exchange your existing system.
Call for further details

NEW

COMMODORE AMIGA 3000

DIAMOND 16/40 A3000 P.O.A.

DIAMOND 25/40 A3000 P.O.A.

DIAMOND 25/100 A3000 P.O.A.

CALL FOR VOLUME DISCOUNTS
WITH CBM OS/2

COMPUTER ACCESSORIES



RIBBONS & DISKS

RIBBONS	QUANTITY EACH	
	2	6
OKI 20 COL	£7.00	£6.50 £6.20
OKI 20 BLACK	£6.60	£6.20 £6.00
PANASONIC KXP 1124	£7.50	£7.00 £6.50
KXP 1080/1/2/3	£3.95	£3.80 £3.60
JUKI 6100	£1.75	£1.60 £1.50
M. TALLY MT80	£3.50	£2.70 £2.50
STAR LC10	£3.90	£3.70 £3.50
STAR LC10 COLOUR	£6.50	£6.00 £5.50
STAR LC24/10	£6.50	£5.90 £5.50
CITIZEN 120D	£3.25	£3.10 £2.90
EPSON LX800	£2.50	£2.10 £1.90
AMSTRAD PMP 4000	£3.85	£3.70 £3.40

DISKS
FOR A LIMITED PERIOD ONLY WE ARE
SELLING HIGH QUALITY 3.5" SONY BULK
DISKS @ ONLY £0.35 EACH.
ADD £4.95 FOR 80 CAPACITY LOCKABLE
DISK BOX



MONITORS

ALL UK MONITORS HAVE 1 YEAR ON SITE
GUARANTEE

PHILIPS 8833(UK)
COLOUR MONITOR WITH STEREO SOUND
ONLY £199.00 + VAT

DIAMOND MULTISYNC MONITOR
ONLY £295 + VAT

COMMODORE 1084/S
ONLY £189.00 + VAT

COMMODORE 1084/SD MONITOR
ONLY £199.00 + VAT

NEC COLOUR MONITOR
(for BBC, C64, Amstrad PPC, IBM PC)
ONLY £149.95 INC VAT



CHIPS

WE ONLY SELL NEW CHIPS

A590 CHIPS

0.5Mb £29.95 INC VAT
1.0Mb £58.95 INC VAT
2.0Mb £95.00 INC VAT

A590 2Mb POPULATED £299 PLUS VAT

8 UP BOARD CHIPS
2Mb £99.00 INC VAT
4Mb £199.00 INC VAT
6Mb £279.00 INC VAT
8Mb £369.00 INC VAT

8 UP BOARD SUPRA ONLY £139.00 INC VAT

8 UP BOARD 2Mb POPULATED
ONLY £229.00 INC VAT



PRINTERS

HIGH QUALITY 9-pin dot matrix
printer, including connecting lead
paper and a spare ribbon
ONLY £149.95 INC VAT

STAR LC 200 COLOUR	£163.00
CITIZEN 124D	£162.00
OKIDATA LASER 400	£599.00
PHILIPS MNS 1432	£99.00
CITIZEN SWIFT 24	£229.00
With colour	£249.00
PANASONIC KXP/1124	£199.00
OKIMATE 20	£130.00
STAR LC MONO	£119.00
STAR LC/24/10	£162.00

THE DIAMOND PLEDGE

*"In the extremely unlikely event that you
are able to find a better price on any goods
currently available through Diamond then
we will match that price."*

This does not apply to sales or other special prices

MUSIC X

SPECIAL OFFER Latest version £69.95 INC VAT

COLOUR PIC

Real Time Frame Grabber £399.00

DIAMOND DRIVE

Through port on/off switch ONLY £49.95

Terms And Conditions

All prices exclude VAT unless otherwise
indicated.

Courier service £7.00

Next Day service £10.00

All prices are correct at time of going to press but are subject to change
without notice.

MY PAINT

PRISM COMPUTER PRODUCTS

'BRILLIANT' SAYS NICHOLAS AGED SIX.

Martin Witton, somewhat older, enthusiastically agrees

A PROGRAM JUST FOR KIDS?

Take a blank screen, an Amiga, a mouse, a small child and 'My Paint' – the result – magic!

Watch the child's face as he sees his creativity unfold in front of his eyes. By the control of the mouse, the concepts in his mind translate onto the screen, which delight him. He explores the possibilities, tries out the options – no need for him to read the accompanying manual, experimentation is for him enough.

His picture emerges as he finds he can choose a colour, using a small brush or a large brush, make squiggles, dots, erase the last stroke, mirror his pattern on the screen and then – amazing – can rapidly change the colours all by a simple move-

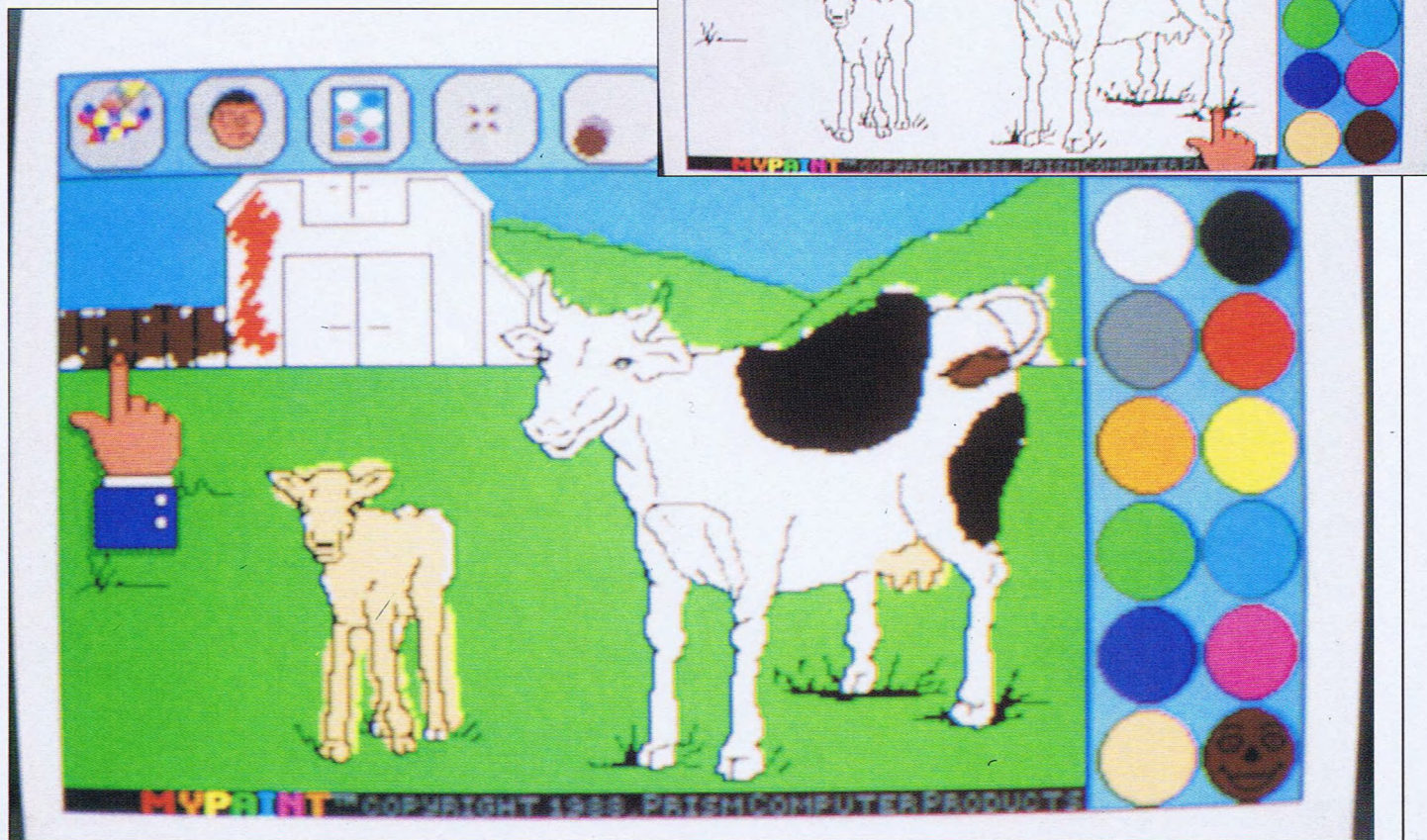
ment with the mouse.

His picture takes on a new magic as he discovers he can use the colour brush which draws with 7 of the 12 colours creating a rainbow effect. When it meets his satisfaction he can print it out to proudly display for all to see. All this with no-mess, no spilt water, no rubbing out and no irrevocable mistakes.

He can create the perfect picture, his own ideas devel-

oped on a screen and then transferred to paper. Wicked fun!

He explores further, knowing he can go back to his own creations later. A parcel appears on the screen tied with a big bow. He finds to his astonishment that a surprise



picture waits for him.

He can colour it in, no going over the edges or fear of the paint running into the last colour. The brush fills in each section separately. He changes his mind, a red background, no a blue background, no a yellow one – then wonderously a flick of the mouse and the picture flashes psychadelically going through various combinations. He can even make part of the picture flash up different colours while the rest remains static. He can add his own shapes to the prepared picture while multi colour cycling transforms the screen.

Ah there is one he likes, let's try this one. He can save it the disk.

What are the lips for? He tries it out and.... wow – sound associated with the picture is emitted. A musical picture that he himself has created. Satisfaction shows on his face, his eyes shining, ideas forming fast – what else will unfold?

There are 28 drawings on the diskette, all of which can be coloured in by selecting the colours from a 'paintbox'. The mini-menu displays the paint options, large enough for even a small child to use, the graphics logical enough for instant recognition but without protruding into the main picture in any way.

Many programs and games claim to give 'hours of fun', MyPaint certainly does.

The variations, possibilities and combinations are more than enough to guarantee that children will not tire of it. It won't become just another disk at the back of the box.

A word of warning – it could cost a lot of money if you have more than one child but only one Amiga! Luckily though 'My Paint' is not copy protected so you are allowed to make one back-up copy of the program.

A word of warning – it could cost a lot of money if you have more than one child but only one Amiga! Luckily though 'My Paint' is not copy protected so you are allowed

to make one back-up copy of the program.

The diskette is yellow so children won't mistake it for a 'grown-up' disk, and they will know if you have sneaked a go after they have gone to bed, unless you remember to safely replace it!

There are 12 colours to choose from, it is a pity that you cannot mix the colours to make more, but the flashing pictures and colour brush make up for this.

In addition there are new characters, objects and sounds available in optional 'My Paint' data disks, which includes 27 new pictures and sounds.

Majelix Character Disk – this is a sample of some of the Majelix characters from the Majelix Data Disk – Majelix is a 'beginning reading' method combining art and science.

Numbers, Objects and Shapes – Includes objects such as telephones and cars utilizing numbers up to ten and shapes such as triangles, squares and other geometrics.

In The Alphabet Set – all the letters of the alphabet are presented with a picture and letter and word.

My Paint – paint program for kids and My Paint data disks – available from Prism computer products.

For children from 1 year to 100 years.
M.W.

COURSEMASTER

The Computer Horseracing Program

- RATES ANY RACE IN SECONDS - ANY DAILY NEWSPAPER IS ALL YOU NEED
- NEVER out of date - Both N. Hunt & Rat - Fast Data Entry
- AMAZING ACCURACY!! - Now you CAN BEAT THE BOOKIE!!
- Works on the simple principle that FAST HORSES BEAT SLOW ONES!!
- Clearly identifies best selection in every race plus these AMAZING features:-
- First, Second and Third choice shown for Forecasts & Tricasts, etc.
- Recommends most suitable type of bet.
- Actually works out your WINNINGS on most popular bets including SINGLES & DOUBLES, win and each way. PATENTS, YANKEES, CANADIANS, HEINZ etc. GOOD EACH WAY and LONG ODDS bets clearly shown.
- WILL PRINT out your BETTING SLIP for you.
- Maintains a BANK ACCOUNT - BET like PROFESSIONALS do! Records all your bets in any number of accounts. Keep a complete record of your betting or compare COURSEMASTER against your favourite tipster.
- PLUS!!!! - The AMAZING COURSEMASTER SYSTEM. This superb betting system is included in the program. A system which regularly produces huge wins from small stakes. Try it! It can pay for itself many times over on the first day!
- Supplied with 20 Page BETTING GUIDE and MANUAL

FREE HOT TIP OF THE MONTH TO EVERY PURCHASER
@ £17.95 tapes, £19.95 discs, inc P&P + VAT

PERM-MASTER

If you are one of those pools punters who regularly uses the perm plans for entering your weekly coupon, (as we at Intraset recommend). Then it is often difficult to assess whether or not you have actually won. PERM-MASTER puts an end to that. With it you simply enter the number of points obtained for each of your selections, and PERM-MASTER does the rest. The program is supplied already with some of the top plans built in, but if your favourite is not there, then you can simply create your own, using the unique perm editor.

- FAST and SIMPLE to use.
- UNIQUE PERM EDITOR allows you to add plans not supplied (Simply edit the X's)
- For most BLOCK PERMS and SINGLE LINE plans. (Up to 25 selections)

Available as for POOLSMATER @ £17.95 inc P&P + VAT

£ PROFIT FROM YOUR MICRO

- WHATEVER your MICRO you can use it to make a good income!
- Even if you only have a couple of hours to spare each week.
- We have put together a package of easy, sensible and practical business ideas which can easily be used by anyone with any micro.
- No computer expertise required!!
- Earn £££'s from home doing what you enjoy doing - using your COMPUTER!! It doesn't matter which model.
- You probably already have all you need to start earning.
- THOUSANDS of potential customers in your area who will GLADLY pay for your services. We will show you how to find them!
- Full step by step guide to EARNING MONEY FROM YOUR MICRO. FREE BUSINESS IDEAS CASSETTE TAPE WITH EVERY COPY

£12.95 inclusive

All progs available for all PCW's, all IBM PC's + compatibles, Amstrad PC's, Atari + Amiga + CPC 6128. Coursemaster + Poolsmaster also available for Spectrums, Commodore 64+128, CPC 464+664.

POOLSMATER

(Formerly 'Pools Predictor' by Conway Computer Systems)
The Computer Football Pools Predictor

The amazing POOLSMATER program is by far the best Pools Predictor we have ever seen. In just 10 weeks of trying this program ourselves, we won no less than 12 dividends, the largest being nearly £300. Mr F. C. Hammond from Essex won nearly £10,000.00 in just 16 weeks. In his own words 'It's a licence to print money! POOLSMATER is simple to use and requires only that you keep the league tables up to date using your usual newspaper.

The result of many years research into the Football Pools by the programmer Martin Evans of C.C.S., the program is a masterpiece of expertise, and is simplicity itself to use.

- Predicts Homes, Aways and Draws
- No fiddly typing in of teams names etc and no redundant databases.
- Instant read-out or Hardcopy if you have a printer.
- Uses scientific formula based on recent form home and away, league position, goals scored etc. It has long been realised that certain combinations of these factors return a much higher than average of draws than the laws of average would expect. POOLSMATER looks for these factors and analyses their significance to give you the best possible chance of a win.
- Also has a 'Sequence Predictor' option. Many people believe that certain numbers on the coupon come up more often than others, and over a season patterns do seem to develop. The program analyses these patterns and predicts the numbers most likely to come up next. Certainly more scientific than sticking a pin in, or family birthdays etc.

If you do the POOLS then this is the program for you.
@ £17.95 tapes, £19.95 discs, inc P&P + VAT

+++SPECIAL OFFER+++

SPECIAL COMPENDIUM DISKS: Please state British or Australian version
CONTAINING BOTH POOLSMATER AND PERM-MASTER - £36.95
CONTAINING POOLS, PERM and COURSEMASTER - £49.95
BUY ANY THREE DISKS (OR TWO INCL COMPENDIUM)
AND RECEIVE PROFIT FROM YOUR MICRO ABSOLUTELY FREE

THE GRAPHOLOGIST

This program is a must for anyone interested in analysing their handwriting, or analysing other peoples. It is also very useful for analysing prospective employees' handwriting. To use the program, a sample of handwriting is obtained, preferably in ink. From the main menu of the program you will be prompted and guided to examine each detail of the sample. You will then be taken through deeper and deeper sets of sub menus, all prompting you for relevant details of the writing, and the points to watch for, and add to the file if applicable.

Upon completion you are left with a disk file up to 15 pages long (depending on the depth of detail you choose), this file can then be edited within your word processor to produce a full report for the writer.

Fully experienced Graphologists can charge almost what they like for a full analysis, so this could prove a very lucrative business venture for you.

We must however stress, that unless you are experienced in graphology, then we can in no way guarantee the accuracy of the information that the program provides. If you are an enthusiastic amateur or just curious, then this program could provide hours of entertainment, whilst teaching you the finer art of this fascinating subject.

The text within THE GRAPHOLOGIST was researched and written by a top London graphologist/criminologist James Woodward. The software was written by Martin Evans our consultant software writer.

@ £49.95 inc P&P + VAT

CASHMASTER

Master your own finances. There is now no need to be frightened by accountancy software. CASHMASTER provides you with the easiest method yet invented to keep track of all your finances. Be you a business or professional individual, you are sure to need to know where your money is going. CASHMASTER will allow you to input all the necessary information per transaction in one simple operation, whilst allowing you to extract the absolute maximum from it all again with an array of statements and reports.

- Features VAT analysis
- Easy, natural data entry - Just like a handwritten ledger
- Any amount of ledger files
- Ledgers can span any time period, there is no one year limit
- Reports can be produced over any time span (1 day to 100 years)
- 90/99 Class Codes (User definable) per ledger file
- 30/99 Accounts per ledger file
- Detailed statements showing balances (Selected accounts & classes)
- Profit & Loss Statements (Selected accounts & class totals)
- Tagging of entries for extra report selectivity
- Items can be inclusive, Exclusive or Zero VAT or VAT can be just ignored
- VAT element automatically calculated and displayed
- Pop up running total calculator
- Entries can be repeated with just one key press (Standing Orders etc) Weekly, Fortnightly, Monthly, Quarterly, Half Yearly or Yearly
- Entries can be edited or deleted at any time
- Insert entries anywhere, CASHMASTER puts them in chronological order for you.
- Reports directable to Screen, Printer or Disk file
- Detailed selectivity for reports
- Reference field for each entry (Invoice No, Desp Note No etc)
- 10,000 entries PC version, 2,000 PCWs
- No need for sorts, always in correct order
- All functions and operations available from main program screen
- Most functions operate from a single key press
- Scan through the ledger a line, or page at a time if required
- Split and merge file
- Class and Account code descriptions visible at all times. Scroll through pages of codes with one key press
- FREE separate running total calculator for adding up those cheques, useful for those quick sums

WE APOLOGISE TO ALL OTHER SOFTWARE WRITERS AND TO ANYONE ELSE WHO HAS BOUGHT THE OTHER SO CALLED 'EASY TO USE' PROGRAMS. CASHMASTER REALLY DOES BLOW THE LID OFF COMPUTERISED ACCOUNTING.

THIS IS HOW IT SHOULD BE DONE

Not only superior to the competition, it's far cheaper too!
@ £29.95 inc P&P + VAT

INTRASET LTD, (DEPT AUI)

FREEPOST
No 10 WOODSIDE AVENUE,
CLAYTON-LE-WOODS,
CHORLEY, LANCASHIRE PR6 7QF
Tel: 0490 3284 9am - 6pm or
02572 76800 24 hr ordering
FAX: 02572 74753



BLITZ BASIC

Total control over your Amiga with not a ViewPort in sight?

The Amiga is one of the most powerful micros on the market today, equipped with some amazing sound and graphics hardware as is evidenced by the quality of the software which drives it. However, most of this power is unavailable to BASIC programmers and the only way to get to grips with the machine's potential is to learn either C, Modula-2, or assembler, a process which is time-consuming, expensive and not exactly a cinch to understand. AmigaBASIC, supplied on the Extras disk, is comprehensive and pushes the language nearly to its limit, but the only trouble is the speed – it is embarrassingly slow considering the Amiga's legendary processing power, almost needing a 33 MHz 68030 to use the editor alone. Part of the reason for this is the very nature of interpreted language having to be "translated", as the program is running, into something more machine-orientated. Compilers are the next step, performing this before run time.

There are a few BASIC compilers on the market which will translate the code into a more optimised form, and the speed increases are very welcome, but the constraints of AmigaBASIC still apply, and there is virtually no facility to take full advantage of the Amiga's custom chips. The program under scrutiny, Blitz Basic, addresses the problem even further, providing a totally new implementation of the BASIC language which is tailored especially for the Amiga and its juicy hardware. It is worth emphasizing at this stage that Blitz Basic will not compile your existing AmigaBASIC code, unlike the Hisoft BASIC compiler which will cope with most things. In fact, Blitz Basic does not even attempt to integrate with the Amiga's vast operating system in the slightest: running a program will shut down multi-tasking completely and this was quite worrying at first, but on quitting, everything seems to reappear none the worse for this indignity. The Intuition environment, familiar to Amiga users, is not present under Blitz Basic at all, so there are no windows or menus, but the mouse and pointer are supported.

You may be getting an inkling that Blitz Basic is going to be games-orientated, and having said what it does not

'dual-playfield demo of B L I T Z B A S I C

SCREEN 0,640,200,3 'note 640 by 200 is not resolution, its size
SCREEN 1,320,200,3 'similar to BASIC but not identical

'now, turn on a dual-playfield DISPLAY

DISPLAY 320,200,0,1,1,0,1

'draw something TO the background SCREEN (AND SHOW it)

USESCREEN1

SHOWB 1,0,0 'SHOWB means post up the background screen
FOR a=10 TO 310 STEP 20

LINE 0,199,a,0,1 'draws a pretty pattern

LINE 0,0,a,199,1

LINE 319,199,a,0,1

LINE 319,0,a,199,1

NEXT

'now, something for the fore-ground SCREEN

USE SCREEN 0

LOCATE 0,0

PRINT "Ta-a!, this is a dual-playfield display. I hope you like it."

a=10 To 80 STEP 5

CIRCLE 159,99,a,3

NEXT

main

VWAIT

SHOWF 0,MOUSEX,0 ' moves the front screen around with the rmouse
movements

IF JOYB(0)> 0 THEN END

GOTO main

Fig. 1 This is what a Blitz Basic Program looks like

do, the rest of this review will concentrate on its many attributes. Tony Horgan took a look at AMOS a couple of months back, and it seems these two products are very similar in their approach. The demos for Blitz Basic are very impressive indeed; they managed to write a very convincing two-player version of the classic Defender which scrolls smoothly and plays at a very respectable speed. The rotating balls of another demo are familiar to followers of

the various hackers around, and again the animation is excellent.

The Manual

Any program like this must have high quality documentation and Blitz Basic is supplied with a comprehensive manual which is not afraid to catalogue the program's limitations, as well as emphasise the advantages. Each com-

mand is fully explained and there is an introductory section on the BASIC language for the uninitiated. There are plenty of examples on the two disks which illustrate the more complex aspects of Blitz Basic's control of graphics. An index would have finished it off nicely, but the contents pages have the right kind of information to get you going.

The Language

Although a few short cuts have been made, Blitz Basic is a fairly comprehensive version with all the usual features like multiple statement lines and subroutines. It follows AmigaBASIC to a certain extent, not using line numbers but preferring alphanumeric labels, where necessary. Program control statements are adequate, with FOR...NEXT loops, IF...THEN, and WHILE equivalents. The maths format is fast, but slightly limited in that numbers range between 132768 (to four decimal places), and some strategic mathematical functions, but this should be sufficient for most games writers. I/O is augmented by a number of specific commands to load in IFF files for sprites, screens, sounds and

"The demos for Blitz Basic are very impressive indeed; they managed to write a very convincing two-player version of the classic Defender which scrolls smoothly and plays at a very respectable speed"

even fonts (although you are limited to 8x8 characters drawn on a DPaint screen), but more on these later. Other BASIC niceties such as arrays and string handling functions will make even the relatively inexperienced programmer feel instantly at home with the language.

Building a display was always a tedious process in any language, but Blitz Basic goes a long way to simplifying the operation without having to suss out all those ViewPorts and other confusing system data structures. Not content with a 320x200 32-colour screen, Blitz allows you easy access to the wonders of dual-playfields, hold-and-modify, and extra half-brite modes. Colour control and drawing routines supplement these, so drawing things is child's play.

Blitz really goes for the jugular when it comes to animation, giving you the option of using the hardware sprites or its own BLITs, also known as BOBs in Amiga circles. The mechanics of moving these around and detecting collisions are neces-

sarily complicated, but needless to say Blitz Basic comes with a variety of functions to simplify the job as much as possible, without sacrificing power. A QUEUE command instructs Blitz to remember where the BLITs are located so you don't have to worry about erasing objects before moving them. Control at a level even closer to the hardware is possible with commands like BMODE which dictate how and when the blitter chip does its thing.

SLICES are a very nice means of splitting up the display into regions which may have very different display characteristics, rather like raster interrupts on the old C64. The Amiga has a coprocessor (the COPPER) to do this for you and Blitz takes the grind out of generating the fairly complicated instructions for this chip. To fully utilize this feature, you must be able to synchronise changes to the display with the position of the raster beam drawing it, and the VBLANK, VWAIT and DMA commands enable this. Smooth flicker-free graphics are therefore assured.

Sound is another of the Amiga's strong points and Blitz Basic will happily play samples and also music files generated with its own editor program. It's a pity that the standard SMUS or Sonix files are not supported especially as the editor (Maestro) is pretty ineffective. Written in Blitz Basic, it highlights a major limitation of the system in that Intuition and AmigaDOS are absent, meaning you have no way of reading directories of filenames into the program to select files to load. This kind of I/O went out with the ZX80 and is really unacceptable on a machine like the Amiga with its filing system. A few "special effects" functions like VIBRATO and BEND add a bit of variation to the sample as it is playing.

The miscellaneous commands are interesting, with functions to read the mouse or joysticks, colour registers, loading and calling assembler routines and so on.

Error handling is important in debugging, and again Blitz scores well in this department, with a set of error conditions and trapping procedure for the familiar "Subscript out of Range" type of problem to Blitz-specific conditions like "VBLANK routine too slow".

The Editor

The Blitz Basic environment is essentially a single program allowing the edit-compile-run-wonder why it didn't work-start again- cycle to occur quickly with the minimum of fuss. The program is happy to read AmigaDOS text files so you could stick with your favourite editor, but there seems little point as Blitz is quite adequate for most purposes, running under Intuition. Compilation is very quick indeed as there is no recourse to disk-based libraries so most programs will compile in a matter of seconds. The code generated is quite concise; the main Defender program is about 85K plus all the data files

from 28K of source. Various options allow you to optimise the code for speed, mainly by taking out error checking and other debugging aids. Workbench-ready files are generated and there is also the option to make an autoboot disk to be really professional. One caveat here is that Blitz didn't like loading its programs from my hard disk and kept crashing the system. I suspect this is because of their weird load routines designed for floppies but the problem is alleviated by loading the directory into the RAM disk before running the program, an easy procedure under Workbench, if a little unnecessary. Note that you do not have to use the Blitz Basic compiler to run its programs: they

"Other BASIC niceties such as arrays and string handling functions will make even the relatively inexperienced programmer feel instantly at home with the language"

are entirely free-standing and so you can give copies away to your friends to show them what they are missing.

Conclusion

Would I use Blitz Basic? The answer is an unqualified "maybe"! There are a number of limitations which, in all fairness, MAST themselves point out and the openness of this information in the manual is welcome. Competent BASIC programmers who wish to get more out of their Amiga without the hassle of Assembler or C are going to find Blitz very useful indeed. I think it makes a good stepping stone to bridge the appreciable gap between the powerful, but slow, AmigaBASIC and the "professional" languages previously mentioned. Developers of games and other applications will be able to use Blitz to just try out new ideas, safe in the knowledge that their code is easy to write, but not too distant from the rules of the operating system to make porting it to C or Assembler awkward. Finally, I hope we see a lot of programs written in Blitz Basic in the public domain libraries, if not in the games charts, as I am convinced the potential is there for some quality stuff.

M.N.

Price: About £50.

**Contact: Memory and Storage Technology, Theodor-Heuss-Ring 19-21, 5000 Köln 1.
Tel: (010 49) 221 771 0918**

MOUSE ATTACK!

Golden Image have added to the surplus of Amiga mice. But, Pat Kelly asks, are they better than the original Amiga mouse?

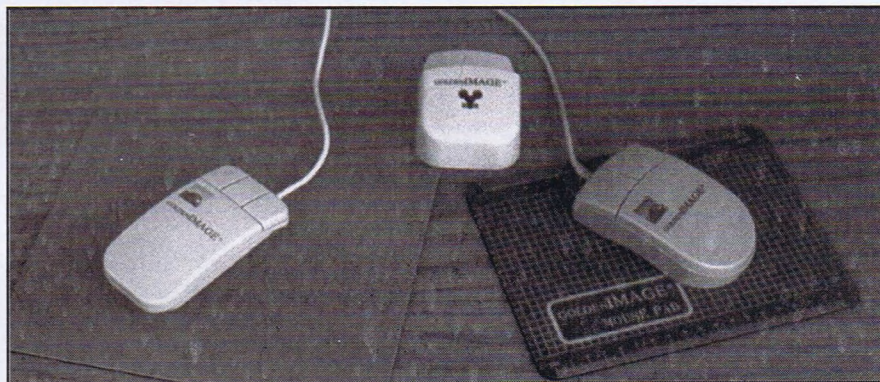
The mouse has been underestimated by a lot of computer users. Why? Because like the keyboard it is an integral part of the Amiga interface between microprocessor and computer user. Many users prefer to use the CLI rather than the workbench for the simple reason that they regard controlling the mouse rather than being a pleasure, a chore.

In serious applications such as Desk Top Publishing, Computer Art, Wordprocessing, Spreadsheets, etc., etc., the more at ease the user feels with the tools, the more productive and less stressful they become. This does not only mean that a good applications package is needed, a good interface tool is also required, be it a mouse, lightpen, trackerball, or keyboard.

"Even games can be greatly enhanced, in playability, with a superior mouse"

Sadly, the Amiga's standard mouse isn't up to the job of providing a professional service to the user. Even games can be greatly enhanced, in playability, with a superior mouse. But, are all replacement mice superior? Many will have you believe that a different mouse is superior to the original just because it features an extra button, a higher resolution, technological advances, and a host of other impressive specifications.

Golden Image have two mice in their product line up. The lower specification mouse is the GI-500C opto-mechanical mouse. So what is an opto-mechanical mouse? It is a mouse which operates using both optical and mechanical encoding of mouse movement. The mechanical part, in this case is the Mouse ball and tracking rollers, a standard feature. The optical decoding is a feature within the mouse casing which uses the mechanical rollers to turn two circular wheels, one for x-direction, the other for y-direction. These wheels have small slits in them, through which light passes to a light detector thus creating an electronic pulse. The frequency of the pulse determines the speed of the mouse movement. This, again, is a



standard feature of any normal mouse so maybe Golden Image are trying to dazzle users with technological terminology.

The GI-500C is a neat performer. It is supplied with a small mouse mat, but because its resolution is an impressive 290 dpi, one of the best there is, it does not require a large travel area. It sports two micro-switch mouse buttons which are very responsive at the slightest pressure.

The casing, however, has a cheap "plasticity" look and feel with a high back, i.e. high from the desk causing the hand to be raised and arched. This may not be a discomfort to most as it all depends on how you normally hold it!

The GI-6000 is the senior of the two mice, and it also has the same high-backed design. This mouse is an optical mouse, but unlike last month's reviewed 'Cordless Mouse' it is not cordless, but ball-less.

"The optical mouse glides across a special 'gridded' mouse mat at 250 dpi, using three light sensors to create x-axis and y-axis movement pulses"

The optical mouse glides across a special 'gridded' mouse mat at 250 dpi, using three light sensors to create x-axis and y-axis movement pulses. This reduces the need for the moving parts associated with standard mice i.e. mouse ball, rollers, and wheel mechanisms. If a mouse becomes faulty it is usually due to a mechanical component becoming jailing due to dirt

clogs, or to wear. This can not happen with the optical mouse, the unit is totally enclosed with no moving parts.

This design allows the mouse to be very lightweight, at 85g it is half the weight of a conventional rodent. This is not necessarily good as further pressure maybe required to hold the mouse down while gliding across the special mat. The mat is a little too cheap and cheerful to be considered as a sturdy and reliable part of the equipment, and it may mean that replacement mats could be required if care is not taken with the original.

"This may not be a discomfort to most as it all depends on how you normally hold it!"

The cheaper GI-500 with its high resolution has to be a nice mouse for the low price and certainly beats the standard Amiga mouse in performance, but I am unsure whether the optical GI-6000 has the same appeal and its performance is marred by its lightweight, and it is twice the cost of its little brother.

P.K.

Prices:

GI-500C: £26.00

GI-6000: £56.03

Contact:

Golden Image,
Golden Image House,
Fairways Business Park,
Lammas Road,
Leyton,
London E10 7QT.
Telephone: 081-518-7373

MICROTEC

DOUBLE
PACK
£12.99

ENTERTAINMENT

PRESENTS

In conjunction with Mutation Software

FOR
THE
AMIGA



B y P o s t B y P h o n e

Please rush me a copy of Bug-Bash/Nucleus
I enclose a cheque/postal order for £12.99
plus £1.00 post and packaging

NAME _____

ADDRESS _____

POSTCODE _____

To order by Access or Visa

RING

071 - 281 9022

Also available from your local computer store

MICROTEC ENTERTAINMENT, 61 STROUD GREEN ROAD, LONDON N4 3EG.

How To Be A

More techniques for the computer artist are revealed by Peter Lee in the second of his series, which focuses on text effects and surfaces.

Part II

Computer graphics is one of the newest art forms, and yet one of the easiest to master.

A surprising statement? Well, every other form of graphic artistry requires much more devotion to style and technique – in the case of pencil sketches the weight of the line is all-important, while in watercolours the subtle wash of colour on colour has to be learned.

In the case of Amiga art the technique has a great deal of technicality about it, and, although gripping the mouse can be as interactive as shaking a dead man's hand for all the feedback you get from it, it is a marvellous drawing tool, once you are used to it.

The benefit of computer art is that no matter how many errors you make on the way to the finished work, you can always try something different to improve things. 'UNDO' is a tool Leonardo daVinci would have loved. . .

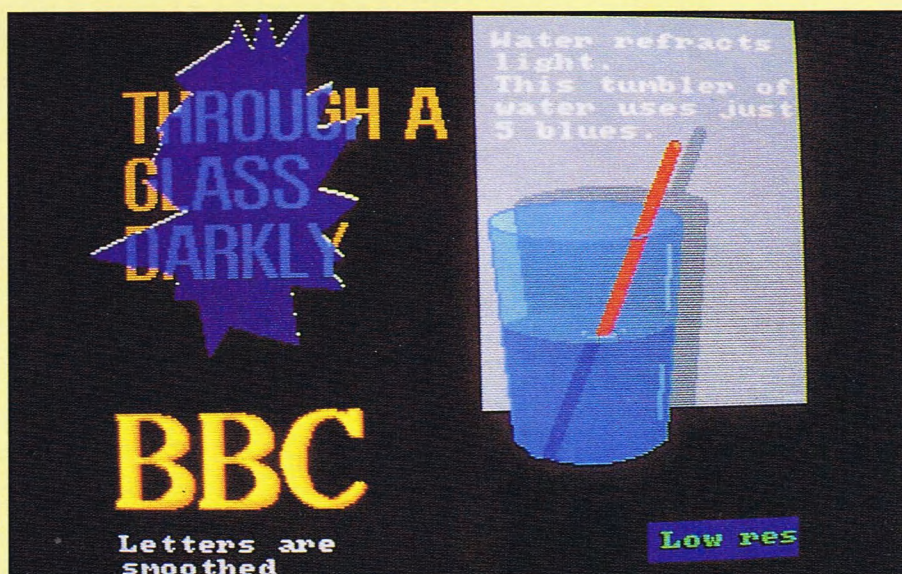
Simple things first: I would recommend the purchase of a mouse mat to make control easier – mice rollers are sensitive and can kick up unexpectedly on a solid, uncushioned surface. Use your workbench preferences settings to ensure your cursor can cover the whole width of your screen with a sweep across the mat. Another tip I would offer is to use one of the software utilities such as sunMouse or Dmouse which speed up response of the pointer quite effectively (though adjust the setting to avoid having too fast a response, which can lead to drawing problems). This gives a more natural flow to mouse control.

In the main this article will be referring to work done in DeluxePaint III – though most of the tools discussed are generally standard fare for most art packages.

TEXT

A good choice of font can make or break your efforts. There are some wonderful fonts available on the Amiga, and I would suggest a font disk or two as a prime investment, because those that accompany the computer are poor, sickly things for impact and range.

Display and enhancement of text is one of the big attributes of computer art. Rather

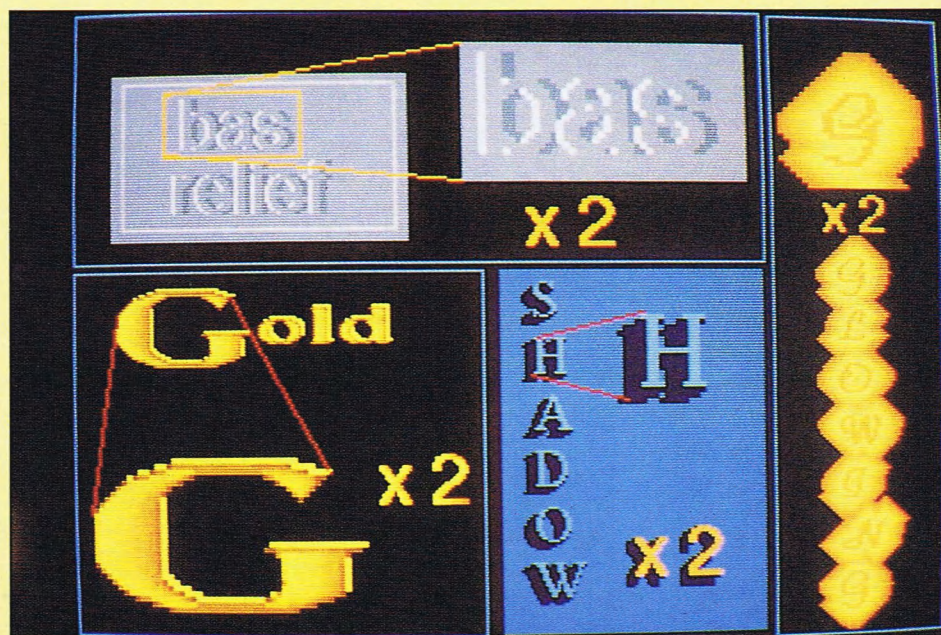


than being viewed as a typewriter, the computer screen can be seen as a poster – an attraction to hold the interest and pass on information.

It may be a title screen for a slideshow you have strung together, or the basis for a menu choice. Either way, just plonking

the bald text on screen is going to be deadly boring. A number of techniques exist for emphasising text: here's how to achieve them.

SHADOW – Simply a matter of cutting out your text, stamping it down on the screen in a dark colour, then overlaying



Amiga Artist

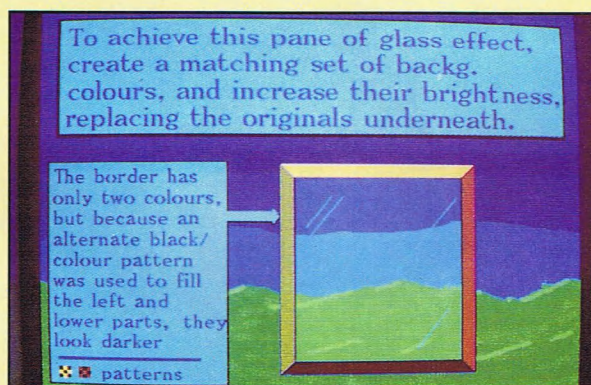


your original text brush. For best results your shadow colour should be a darker variation of your background colour (so obviously this will not work on a black background!). There are two ways to achieve this effect in DPIII - make your background colour the shadow colour and use the right mouse button to stamp down the brush, or use the F2 key to select the colour option, and choose the shadow colour from the palette menu before placing it on screen. You can now revert to your original brush colour with a press of F1.

If you ARE on a black background, then using this technique will allow you to create text with the appearance of depth.

A DROP-SHADOW is almost identical, except that the text is moved further away from the shadow image, to give a greater impression of height above the background surface. To enhance this effect, it is possible to use DPIII's smooth function to blur slightly the shadow's edges, giving a softer, more natural diffusion to the shadow.

BAS RELIEF text is slightly harder to achieve, but gives a good impression of raised lettering, pressed from the back-

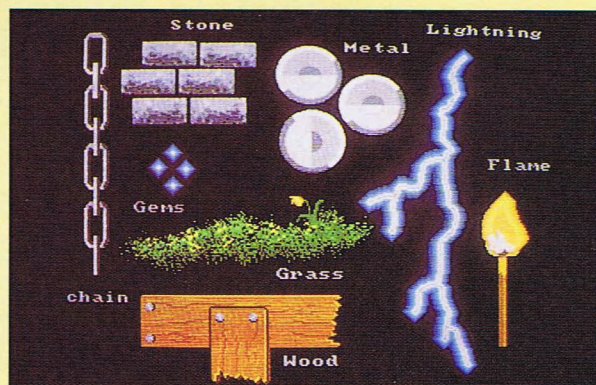


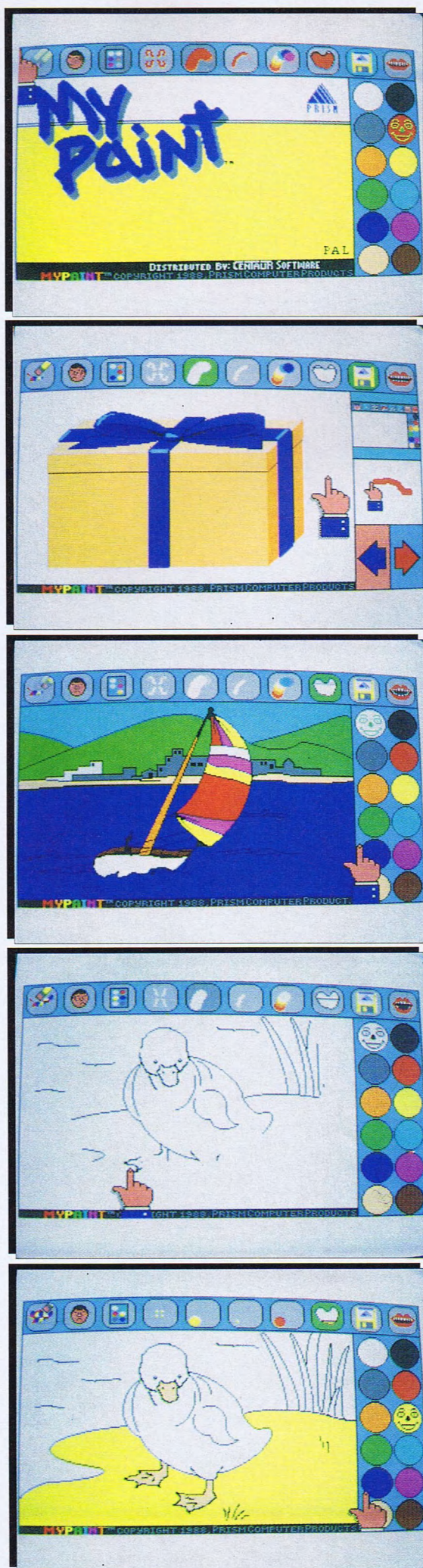
ground. Having cut your text, you need to select a lighter variation of the background colour and stamp it onto the background (image A). Then pick a slightly darker form of the background colour, and stamp this (image B) to the left, and a pixel down from the image you have just created. Now select your background colour, and position the text brush so that only the right and left highlights of

the AB image are visible (your brush will be hiding the rest), and stamp it down.

NEON or glowing effects around text (or any brush) are achieved by firstly defining a range of colours (6 is usually sufficient). Then having cut out your text, using DPIII's outline function (the letter o), and working from the lightest of the range

Continued on page 37





No mess! Lots of fun . . . and educational too!

'Brilliant!' is the verdict of our youngest reviewer ever on MY PAINT in this month's issue of AUI.

Whether or not your child is already a Picasso or could simply do with a little artistic encouragement, MY PAINT will give them all the artistic creativity they need — with a little help from your Amiga.

Using a small or large brush you can choose up to 12 colours and lots of designs like squiggles, dots and splashes to create a colourful masterpiece. A superb feature is the 28 drawings supplied on disk and ready to colour in! Not only that, there are another two diskettes available to help expand and experiment with each costing only £9.99 it is like getting a whole new program at a bargain price.

Disk 1 — "Alphabet Fun" has all the letters of the alphabet ready to be coloured in as well as digitised speech accompanying them saying the name of the letter and animal pictured.

Disk 2 — "Majelix" is an essential reading teacher. Based on phonics and sight reading, the disk contains 29 Majelix characters providing children with a powerful reference to the English language.

We are offering you all three packages at a reduced price . . . so snap up this deal and get imagination moving!

**TO: MY PAINT OFFER,
AMIGA USER INTERNATIONAL
116-120 Goswell Road, London, EC1V 7QD**

Package A: Please send me . . . MY PAINT package at £15.99 including VAT and postage and packing

Package B: Please send me . . . Disk 1 at £9.99 each
Please send me . . . Disk 2 at £9.99 each.

SAVE MONEY . . .

Package C: Please send me . . . MY PAINT,
Disk 1 & 2 for £32.99

Please make cheques payable to M.C.P.C. Ltd., or debit my

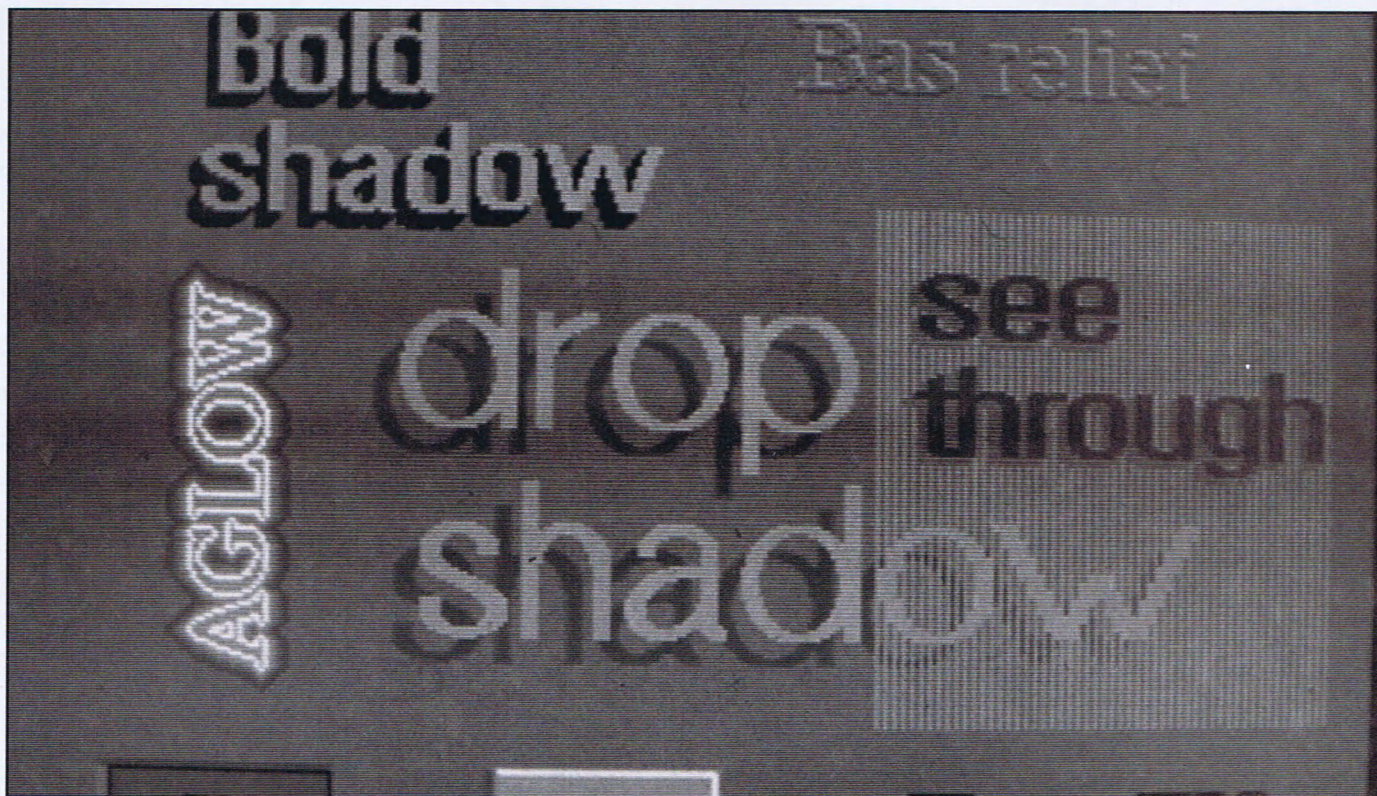
Visa ☐ or Access ☐ card no.

Name

Address

Please allow 28 days for delivery. Offer closes 31 March 1991

If you do not wish to cut your Amiga User International, a photocopy of this page will suffice.



Continued from page 35.

of colours to the darkest, you outline the brush six times, which will give the appearance of a fading light source. Blue is an excellent colour to use, though red and green are also potent.

METALLIC text, especially gold, is a favourite, and is achieved quickly by defining a range of yellow-browns, and using these as the basis for a dithered fill, each letter being filled separately. Cut out the resulting text, select F1 from the keyboard to enter matte mode, and use the shape of the brush together with the smooth function to blend the pigments inside the filled text together, smoothing out any coarseness.

If you now need to add a little emphasis, select the lightest shade of your golden range, and as with the drop shadow, cut the text, select F2, and stamp the text on screen, press F1, then offset and stamp your text brush a pixel or two so that one or more edges have a gleam to stimulate depth.

TEXTURES AND MATERIALS

Of all the textures, **GLASS**, for obvious reasons, presents people with most problems. How do you show something is there when you can see through it? In the case of windows, the technique I adopt is to glaze the window last.

Draw your back ground, and only then put in the outline frame (in this case a frame can equally well be a car windscreen, a window in a home or merely a pair of spectacles).

You should now be able to see your

background through the frame. There are two paths to follow now – an easy, and a hard. The easy one requires you to see which colours are visible through the frame, duplicate these in your palette (forward planning is clearly needed), then increase the brightness of these duplicates by a setting or two. Now replace the old colours in the frame with the new, lighter ones. You should then add one or two light streaks across the 'surface' of the glass to simulate a reflection, and to prove to the mind's eye there really IS something there.

The more difficult alternative is to mix duplicates of your background colours with various proportions of blue. While this may give more natural effects, I find it too time consuming over a range of colours.

In the case of a tumbler of water, you have to adjust your perception of the object and imagine it as boundaries of colour (usually tones of blue), dark for the liquid and light for the glass. Then added complication of glass seen through glass is overcome easily by choosing a darker shade of blue wherever glass can be seen through itself.

An object in the glass will be subject to refraction – an apparent displacement of its true position, and where it enters the water, a few semi-circular rings of a light blue add to the impression.

GRASS can be quickly sprayed onto the screen using the airbrush at its smallest setting, mixing up to three shades of green, with a smattering of yellow dashed over it to give the impression of flowers.

SMOKE can sometimes present difficulties, though the standard way I use is to define a range of up to six greys, set the

mode to cycle, and using a round brush just move over the screen in small circular motions. This looks nothing like smoke – until you then use the Shadow function on the image, alternatively pressing the left and right buttons to delicately shade in the greys, before returning to the faithful Smooth function to blur the outlines.

WOOD, it should be remembered, has a surface texture which is affected by the direction of light. In drawing the grain, use two colours onto the base tone – one as a highlight, the other as the shadow.

Its very colour gives **STONE** a hard feeling, and rather than simply cycle a series of greys over the surface using the spray tool, I find it better to soften the texture afterwards using the smooth function. And remember, once you have defined one stone, use it repeatedly to build up your structure – always remembering to flip it horizontally from time to time to avoid an obvious repetition in the pattern of the stones.

LIGHTNING is achieved in much the same way as the glowing text: draw the fork in a light blue, cut out the shape as a brush, then using a subtle range of up to four darkening blues, outline the brush successively. **FLAMES** can be simulated in a similar way, using a basic orange colour, and adding layers which get progressively redder.

NEXT TIME - I'll take a look at some other materials together with an introduction to easily achievable DeluxePaintIII animation techniques to give you the kind of special effects which rival some professional packages.

P.L.

Two Way Television

John Kennedy details a leading-edge development in communications. Will your Amiga replace the common telephone?

Domestic two-way television (2WTV) has long been the ultimate telecommunications dream of science fiction writers. Ever since the standard telephone was introduced it seemed only a matter of a few years 2WTV before would follow, just as TV had followed radio.

Alas, it was not to be. Sending speech down a wire by varying an analogue property such as voltage or current is a relatively simple process. Sending pictures in the same way was not quite so simple. A moving image requires many times as much data to transmit. Its bandwidth - as information engineers like to call it - could not be supported by a network designed to carry speech. Consider the length of time it takes to transmit a photograph via a Fax machine: Not really up to Disney animation standards.

Does this mean that 2WTV is an impossible dream? After all, it seems as though physics has conspired against us from the start. Well, take a deep breath: I have a 2WTV system running on my Amiga. How does it work? Well, let's start at the beginning.

A novel approach to sending images would be an adaptation of the mechanical scanning disk system used by John Logie Baird's first attempts at television.

Baird's system worked by using a rotating disk with a series of holes drilled in it. The holes were arranged so that they 'scanned' an image projected on to it many times a second. A light sensitive device placed behind the disk reacted to the pulses and sent a signal to the receiving system. The receiver had a synchronized spinning disk placed in front of a light source which was controlled by pulses from the transmitter. The light shone through the holes in the disk and re-created the image.

This ingenious hybrid of analogue and digital systems was capable of some very worthwhile results. They may have been a

far cry from the HDTV of tomorrow, but they required a remarkably small amount of data to be transmitted. Building a video recorder from such a device could have easily been achieved by adapting a small personal stereo cassette player (had they existed at the time). Transmitting such a signal down a telephone wire would be entirely possible, as the bandwidth has been reduced by deducing a very important part of the signal (time) individually at both ends of the circuit.

In fact, considering the simplicity of the system, you may be tempted to have a bash at re-developing it. Using a photo-sensitive transistor and some Light Emitting Diodes, the results should be very interesting. Taking the system one step further, colour may even be possible by using the tri-colour LEDs now widely available. Fancy building yourself a closed circuit television service for less than a fiver? Come back Mr Baird, all is forgiven...

However, the Mr Baird's system is not the one which has had vast amounts of R&D cash pumped into it in an effort to bring 2WTV to the masses. The big electronic corporations want something a bit more modern. A bit more expensive. The analogue process is out, and digital in.

Does this mean that there is no place for the home experimenter any more? Not a bit of it. Thankfully, current computer technology is available to the mass market at a very reasonable price. All you need is a bit of imagination and ingenuity and you could beat the mega-corps at their own game. Well, perhaps.

The computer set-up I use is an Amiga. I use it because I have one, I like them and they are (relatively) easy to program in a wide variety of languages. I try to use C wherever possible as it seems to provide the best development time : execution time ratio. Why don't I use C++?

Good question.

To obtain the digital images I cheat and

use a video digitiser called VIDi from the Scottish company Rombo Productions. VIDi has been around for several years now, and is fast, cheap and cheerful: perfect for the inventor on a tight budget, or poor science student cum freelance journalist.

VIDi is a frame grabber, in that it can capture a video frame in real time. It then holds it in its internal memory before downloading it to the host computer. The Amiga version operates with a resolution of 320 by 256 pixels in sixteen shades of grey - more than adequate.

Obviously for true 2WTV each computer system must be equipped with a VIDi digitiser and a suitable video source (such as a black and white second-hand CCTV camera). For 2WTV over distances greater than across the living room with a stretched serial cable, a pair of MODEMs is also required, the faster the better.

Programming a 2WTV system is an interesting challenge. The techniques I've used form a perfect blue-print for a machine code fanatic to hack them into a much faster and slicker system. Maybe, there will soon arise a proper IFF standard to allow images to be swapped between systems. Imagine a face-to-face conversation with a fellow Amiga hacker in America!

2WTV Overview
Video image grabbed
Video image placed in Amiga memory
Video image reduced to a 64 * 64 bit array
A delta bit array detailing the bits which have changed is created
The delta array is run-length compressed
The compressed data is transmitted

MODEM



MODEM

The data is uncompressed
Delta data combined with existing data to produce screen array
Array displayed on-screen

The quality of the video display in my system is a little disappointing. To make things as simple as possible, I decided upon a 64 by 64 pixel, one colour image: Definitely not up to the Amiga's usual standard. However, the resolution is adequate to transmit someone's face, especially when the image is moving.

The most interesting challenge was to minimise the amount of data transmitted with each frame. Consider a situation where no compression is used. A 64 by 64 pixel display takes 512 bytes. A MODEM operating at 2400 baud (a slow albeit affordable speed) would take at least 1.7 seconds to transmit it. A new video frame every two seconds is not acceptably fast.

By delta-encoding the array, we obtain only the bits which have changed since the last frame. In a good real-world case such as a human face, one hopes there will be very few changes. Perhaps the eyes will have moved, the mouth changed shape: in other words only a minimal change from one frame to the next.

The delta array is therefore an ideal candidate for run-length encoding, since it consists of a few binary bits followed by a long sequence of nothing, then another bit or two, then a sequence of nothing and so on.

The delta array is also a 'sparse array': Only a few elements in it are used. You might think that sending only a list of these changed bits would be a better idea, but experiments have shown that the data needed to describe each bit's position is in itself greater than sending the entire array. For example, in our example the array is a 64 by 64 grid. Therefore each element needs an 'address' or pair of co-ordinates which can reference from 0 to 63. These take 7 bits each or 14 in total. If only one or two bits were changing, this would definitely be a good technique. Unfortunately for us, too many bits are changing state to make this approach workable.

Typically the run length encoded delta array is only about 100 bytes long. This means that we potentially have a system running at three frames a second: A big improvement. Of course, this does not take into account the processing time needed to create the compressed data, nor the fact that the 'other system' will be transmitting its own data.

Drawbacks

The main bottleneck is the speed of the MODEM. Of course, you can buy MODEMS which will fairly rocket along, especially when MNP systems with built-in compression techniques take over. However, these MODEMS are beyond the reach of most users. Or at least, beyond my reach. Besides, I've always found it's good practice to make a system as tight and as neat as possible.

The other important consideration is

detail, or screen resolution and screen depth. If you increase the detail, you increase the amount of data that must be transmitted and therefore you slow everything down. Adapting my system to provide 4 colour grey-scale would (at least) halve the speed of update. Adapting it to use the entire screen instead of a small window could slow it down twenty times!

The best 2WTV system would be as intelligent as possible, constantly varying the detail transmitted depending on the image. The HDTV system uses this idea, and divides the screen into portions. Only the portions which have changed are transmitted.

Anyway, with processors as powerful as the 680x0 family, and megabytes of RAM to play with this is an interesting (and solvable) challenge for programmers everywhere.

A slight flaw in my 2WTV system: It transmits pictures only, no sound. Sending digital sound down the line is a completely different project. Has anyone looked at it?

Applications

An application which I particularly like the look of is 2WTV for the deaf. A recent system shown on Tomorrow's World was impressive, but the presenters did not mention the price.

It worked by performing a line-detection function on the image before transmitting. As sign language needs outlines more than detail, this automatically means that

the information transmitted with each frame is reduced. Cunning.

Other applications? Well, how does a image-based BBS grab you? Log-on, have a chat with some friends. Perhaps watch a short cartoon. The possibilities are endless. Phone bills are going to be strained!

Some programming examples of the tricky bits

Listing 1 - Accessing the VIDI library.

The VIDI library contains the code necessary to access the hardware, and also one or two use Intuition routines. If you want a copy, get in contact with Rombo and ask for Keith. He's a dead-on type whom I'm sure will be pleased with your interest. Say hello to Verona whilst you're at it.

Listing 2 - Create delta array

The program uses three arrays to hold the image: Old, New and Delta. By comparing the New and Old arrays, the changes can be detailed and the Delta array produced. The simplest way to do this is to use the Exclusive Or function.

Listing 3 - Encoding a delta array

This is a bummer of a thing to code, and could benefit from a re-write or two. The Delta array is reduced in size by using a 'run-length' method. Each first bit of each delta array byte contains a pixel state, and the remaining seven bits contain the length of its run. Experiments have shown that using 6 bits to store the length would improve the system. Output_array is the encode array, ready to transmit. Out_count holds the number of elements in it.

listing 1

```
#include "vidi_lib.h"

struct VidiBase *VidiBase;
VidiBase=(struct VidiBase *) OpenLibrary ("vidi.library",0);

/* Check for video signal */

if (SyncTest()==VIDI_NO_SYNC) {
    printf("No video signal present- quitting\n");
    exit(0);
}
else
    printf("Video signal present\n");
```

listing 2

```
/* Create Delta array */
/* using the eXclusive OR function (^) */

for (count=0;count<512;count++) {
    delta_array[count]=old_array[count]^new_array[count];
    old_array[count]=new_array[count];
}
```


Listing 4 - Transmitting the data

This code has been lifted almost directly from the Rom Kernal Manuals. See them for more detail.

Improvements and Conclusion

Any improvements would consist of

minimising the drawbacks detailed earlier by re-writing the program in machine code. With the system running as fast as possible, extra detail can be incorporated into the images.

The next step is to use faster MODEMS and faster frame grabbers. If these steps are taken, maybe even colour images could be introduced.

In conclusion, with equipment that a surprisingly large number of home users already own, 2WTV systems could soon rival Bulletin Boards for high telephone bills.

If you are developing such a system, get in touch with AUI. What better place is there to provide a forum for Amiga enthusiasts?

J.K.

listing 3

```
encode() /* Run Length Encode delta array */
{
    UBYTE in1,in2,ct;
    USHORT total;

    out_count=0;
    in1=read_array(0);
    ct=1;
    for (total=0;total<=4095;total++) {
        in2=read_array(total);
        if (in1==in2) ct++;
        if ((in1!=in2) || (ct==127)) {
            output_array[out_count]=((in1<<7)+ct);
            out_count++;
            in1=in2;
            ct=1;
        }
        output_array[out_count]=((in1<<7)+ct);
        out_count++;
    }
}
```

listing 4

```
/* Send encoded data to serial port */

if (repeat==HALT_TRANSFER) {
    SerialIO->IOSer.io_Command = CMD_WRITE;
    SerialIO->IOSer.io_Length = 2;
    SerialIO->IOSer.io_Data = (APTR)&repeat;
    DoIO(SerialIO);
}
else {
    SerialIO->IOSer.io_Command = CMD_WRITE;
    SerialIO->IOSer.io_Length = 2;
    SerialIO->IOSer.io_Data = (APTR)&out_count;
    DoIO(SerialIO);
    SerialIO->IOSer.io_Command = CMD_WRITE;
    SerialIO->IOSer.io_Length = out_count;
    SerialIO->IOSer.io_Data = (APTR)&output_array[0];
    DoIO(SerialIO);
}
```

HARD COPY

GREAT IDEAS IN COMPUTER SCIENCE

Alan W. Bierman (The MIT Press £40.50 Cloth, £18.95 Paperback)

Alan W. Bierman is Professor of Computer Science at Duke University in the USA and, in 1985, he was asked to create a computer course for liberal arts students. 'Great Ideas In Computer Science' is a by-product of that course.

It is written in a surprisingly non-professional and conversational style and, because of the way each chapter is labelled, either 'A', 'B' or 'C', although it is almost 450 pages long, not all of them have to be read to understand the contents.

'A' denotes introductory chapters which make few demands on the reader although giving an overall insight into the whole. 'B' sections are the primary material of the book, they are more specialised and demand more effort to read and understand fully, while the 'C' material answers potential questions and summarises the preceding information.

So what are the 'great ideas'?

They are, as the author states, the intellectual achievements in the field and include programming languages, algorithms, software methodology, AI (Artificial Intelligence) and robotics, to name but a few. He goes into all these, and more, in depth and helps in the understanding of each

one by giving exercises, (so sitting with a PC to hand is useful while you are reading this book), which not only aid in comprehension of the information but, by using a 'hands-on' tutorial, teach in a literal way. Bierman's approach is novel to say the least. To start the novice on the programming language Pascal he uses Decision Trees — which can not only help in classifying objects, interviewing people and game-playing but give an insight into how comparatively easy it can be to learn to program. On page 7 there is even a small, very small, but useful, introductory program that the reader can use for a practice run.

I must confess that I always thought an algorithm had something to do with mathematics, but Bierman gives a different definition. He says it can also be a method, procedure, or recipe for doing a job. And who am I to argue with the learned Prof? Especially when he illustrates his interpretation with the appropriate recipes for programs, which undoubtedly prove his assertion.

All the chapters are liberally illustrated with line drawings in addition to the text. And the summaries at the end of each section

are a useful guide to what has gone before, and can be glanced at first to help you decide if you want to read that part or not. Don't let the section headings put you off. Riffing through the pages before getting down to the actual reading I saw 'Numerical Computation and a Study of Functions', 'Top-Down Programming', 'Connectionist Architecture' and 'Parallel Computation on a Saturated Machine' and my heart sank. But, once I'd begun to really read this book I was hooked, (O.K., O.K., so I did skip some of the 'optional' parts), and carried on to the end.

For those who would like to go on to the more esoteric stuff, the Professor gives a list of further reading material but I would think that the books he suggests would primarily be for computer study students rather than the general reader. Still 'Great Ideas In Computer Science' which, incidentally, is sub-titled 'A Gentle Introduction', is a good way to get started on understanding your PC Computer and how it works, what it can and cannot do and how, eventually, the new generation of computers will advance our knowledge of ourselves and the universe.

D.M.

A NEW WORLD OF POWER

THE ANSWER
TO YOUR
DISK
DUPLICATION
PROBLEMS

FOR ONLY

£34.99*

*PC VERSION £69.00

AVAILABLE FOR

- AMIGA
- ST
- PC COMPATIBLES

THE

SYNCR0 EXPRESS II

IS HERE!

● SYNCR0 EXPRESS IS A HIGH SPEED DISK DUPLICATION SYSTEM THAT WILL PRODUCE COPIES OF YOUR DISK IN AROUND 50 SECONDS!!

● Syncro Express requires a second drive & works by controlling it as a slave device & ignoring the computer disk drive controller chip whereby high speeds & great data accuracy are achieved.

- Menu driven selection for Start Track/End Track - up to 80 tracks. 1 side, 2 sides.
- Very simple to use, requires no user knowledge.
- Also duplicates other formats such as IBM, MAC etc.
- Ideal for clubs, user groups or just for your own disks.
- No more waiting around for your disks to copy.
- Probably the only duplication system you will ever need!

THE LATEST CUSTOM LSI CHIP TECHNOLOGY

By using an on-board Custom LSI Chip, Syncro Express has the power to transfer an MFM image of the original disk directly to your blank disk - quickly, simply and without any user knowledge. One external disk drive* is required for AMIGA/ST.



SYNCR0 EXPRESS IS AVAILABLE FOR THE ST/AMIGA/PC SYSTEMS - PLEASE STATE WHICH REQUIRED WHEN ORDERING

WARNING 1988 COPYRIGHT ACT WARNING

Datel Electronics Ltd., neither condones nor authorises the use of its products for the reproduction of copyright material.

The backup facilities of this product are designed to reproduce only software such as Public Domain material, the users own programs or software where permission to make backups has been clearly given. It is illegal to make copies, even for your own use, of copyright material, without the express permission of the copyright owner, or the licensee thereof.

***If you don't have a second drive we can supply SYNCR0 EXPRESS together with a drive for**

ONLY £104.99 (AMIGA)

ONLY £119.99 (ST)

HOW TO GET YOUR SYNCR0 EXPRESS II

TELEPHONE (24 Hrs) - 0782 744707 - CREDIT CARD ORDERS

WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS.

ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

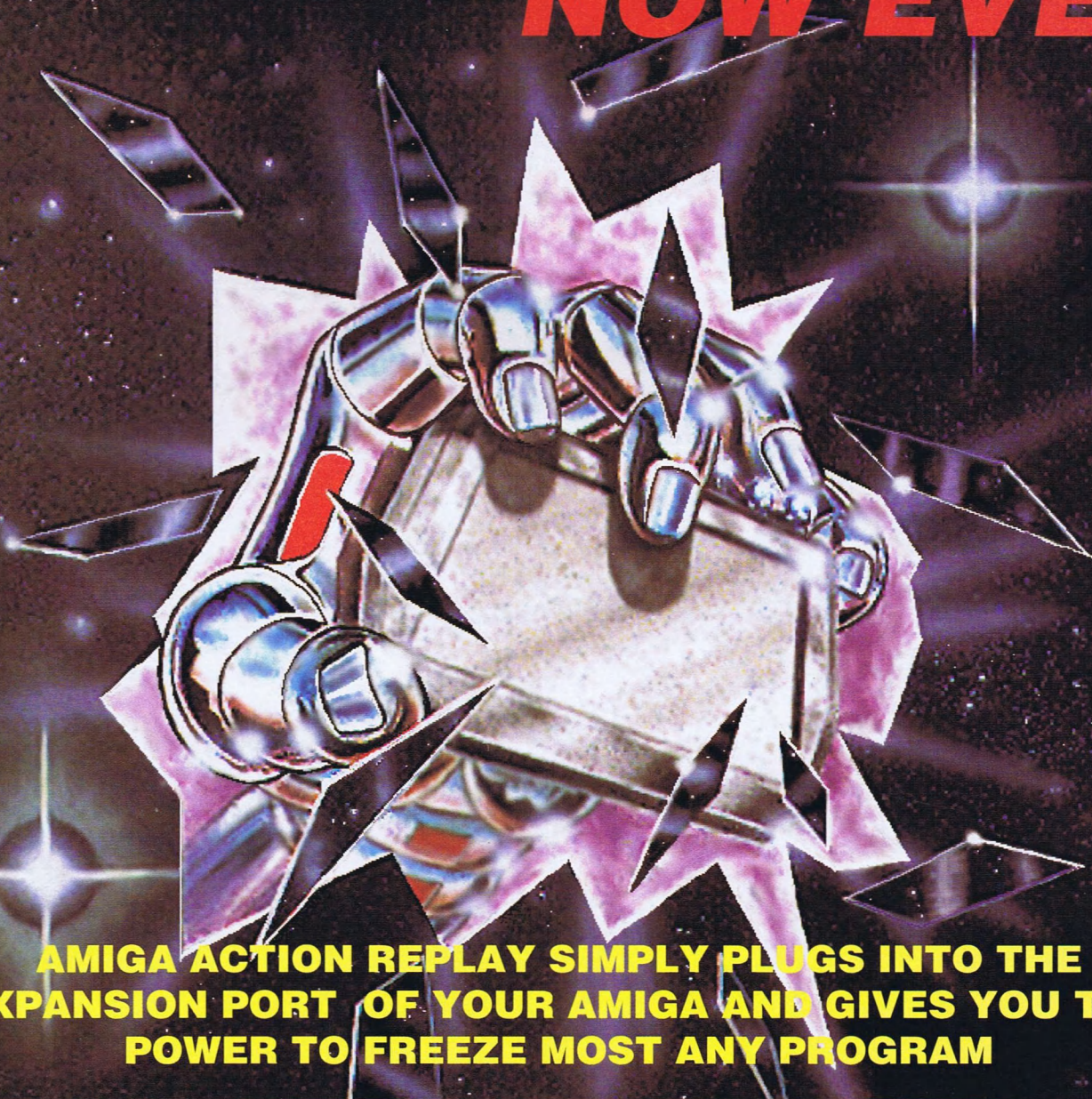
DATTEL ELECTRONICS LTD.,

GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT, ST4 2RS, ENGLAND

TECHNICAL/CUSTOMER SERVICE 0782 744324



THE WORLD'S MOST POWERFUL NOW EVEN



**AMIGA ACTION REPLAY SIMPLY PLUGS INTO THE
EXPANSION PORT OF YOUR AMIGA AND GIVES YOU THE
POWER TO FREEZE MOST ANY PROGRAM**

JUST LOOK AT THE UNMATCHED RANGE OF FEATURES

● **SAVE THE ENTIRE PROGRAM IN MEMORY TO DISK**

Special compacting techniques enable up to 3 programs to fit on one disk. Now saves directly to disk as Amiga Dos - reloads independently of the cartridge - even transfer to hard drive! Works with up to 2 Megs of Ram - even 1 Meg Chip Mem (Fatter Agnus).

● **UNIQUE INFINITE LIFE/TRAINER MODE - NOW MORE POWERFUL**

Allows you to generate more and even infinite lives, fuel, ammo, etc. Perfect as a trainer mode to get you past that "impossible" level. Very easy to use.

● **IMPROVED SPRITE EDITOR**

The full Sprite Editor allows you to view/modify the whole sprite set including any "attached" sprites. **RANGE OF IMPROVED FEATURES.**

● **VIRUS DETECTION**

Comprehensive virus detection and removal features to protect your software investment. Works with all presently known viruses.

● **SAVE PICTURES AND MUSIC TO DISK**

Pictures and sound samples can be saved to disk. Files are saved directly IFF format suitable for use with all the major graphic and music packages. Samples are displayed as screen waveform.

● **SLOW MOTION MODE**

Now you can slow down the action to your own pace. Easily adjustable from full speed to 20% speed. Ideal to help you through the tricky parts!

● **RESTART THE PROGRAM**

Simply press a key and the program will continue where you left off.

● **FULL STATUS REPORTING**

At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.

● **POWERFUL PICTURE EDITOR**

Now you can manipulate and search for screens throughout memory. Over 50 commands to edit the picture plus unique on screen status "overlay" shows all the information you could ever need to work on screens. No other product comes close to offering such dynamic screen handling of frozen programs!!

● **MUSIC SOUND TRACKER**

With Sound Tracker you can find the complete music in programs, demos, etc. and save them to disk. Saves in format suitable for most track player programs. Works with loads of programs!!

WARNING 1988 COPYRIGHT ACT WARNING

Datel Electronics Ltd., neither condones or authorises the use of its products for the reproduction of copyright material.

The backup facilities of this product are designed to reproduce only software such as Public Domain material, the users own programs or software where permission to make backups has been clearly given. It is illegal to make copies, even for your own use, of copyright material, without the clear permission of the copyright owner, or the licensee thereof.

FREEZER-UTILITY CARTRIDGE BETTER!!



STILL ONLY
£59.99

POST FREE
FOR THE A500/1000

A2000 VERSION
AVAILABLE
£69.99

PLEASE STATE WHICH COMPUTER
YOU HAVE WHEN ORDERING

THE NEW **MK II** VERSION IS HERE!!

**NOW WITH A MASSIVE 128K OPERATING SYSTEM IN ROM OFFERING
EVEN MORE COMMANDS...**

● **AUTOFIRE MANAGER**

From the Action Replay II preference screen you can now set up autofire from 0 to 100%. Just imagine continuous fire power? Joystick 1 and 2 are set separately for that extra advantage!

● **DISKCODER**

With the new "Diskcoder" option you can now 'tag' your disks with a unique code that will prevent the disk from being loaded by anyone else. "Tagged" disks will only reload when you enter the code. Very useful for security.

● **PREFERENCES**

Action Replay II now has screen colour preferences with menu setup. Customise your screens to suit your taste. Very simple to use.

● **DISK MONITOR**

Invaluable disk monitor - displays disk information in easy to understand format. Full modify/save options.

● **DOS COMMANDS**

Now you have a selection of DOS commands available at all times - DIR, FORMAT, COPY, DEVICE, etc.

● **DISK COPY**

Disk Copy at the press of a button - faster than Dos Copy. No need to load Workbench - available at all times.

● **BOOT SELECTOR**

Either DF0 or DF1 can be selected as the boot drive when working with Amiga Dos disks. Very useful to be able to boot from your external drive.

PLUS A MACHINE CODE FREEZER MONITOR WITH EVEN MORE POWER!!

MORE FEATURES INCLUDING 80 COLUMN DISPLAY AND 2 WAY SCROLLING...

- Full M68000 Assembler/Disassembler
- Full screen editor
- Load/Save block
- Write String to memory
- Jump to specific address
- Show Ram as text
- Show frozen picture
- Play resident sample
- Show and edit all CPU registers and flag
- Calculator
- Help command
- Full search feature
- Unique Custom Chip Editor allows you to see and modify all chip registers - even write only registers!
- Notepad
- Disk handling - show actual track, Disk Sync. pattern etc.
- Dynamic Breakpoint handling
- Show memory as HEX, ASCII, Assembler, Decimal
- Copper Assemble/Disassemble - now with suffix names

**REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN IT'S
"FROZEN" STATE WITH ALL MEMORY AND REGISTERS INTACT
- INVALUABLE FOR DE-BUGGING
OR JUST THE INQUISITIVE!**

HOW TO GET YOUR ACTION REPLAY II **FAST...**

TELEPHONE (24 Hrs) - 0782 744707 - CREDIT CARD ORDERS

WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS.
ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs. ALL PRICES INCLUDE V.A.T. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

DATTEL ELECTRONICS LTD.

GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT, ST4 2RS, ENGLAND
TECHNICAL/CUSTOMER SERVICE 0782 744324

Access



A TOP QUALITY 400 DPI HANDY SCANNER FOR THE AMIGA AT A TRULY UNBEATABLE PRICE!!



NEW VERSION III SOFTWARE

SCANNING COULDN'T BE SIMPLER...

NEW FEATURES... IFF Buffer Save 1600 x 1024 pixels, dual buffer and scan matching for 1 Meg users, view Buffer and NEW interlace version of software. Full keyboard control of most functions. Includes hard disk transfer to run under Workbench.

- Unmatched range of edit/capture facilities and keyboard control simply not offered by other scanners at this unbeatable price.
- An easy to handle Handy Scanner featuring 105 mm scanning width and 400 dpi resolution enables you to scan graphics and text into your Amiga.
- Adjustable switches for brightness/contrast levels.
- Powerful partner for DTP that allows for cut and paste editing of images etc.
- Geniscan gives you the ability to easily scan images, text and graphics and even offers 200Dpi Dual Scan Mode.
- Save images in suitable format for most leading packages including PHOTON PAINT, DELUXE PAINT, etc.

**ONLY
£169.99**
**COMPLETE
HARDWARE/SOFTWARE**



- Package includes GS4500 scanner, Interface, Power Pack and Scan Edit III software.

**GeniScan™
GS 4500**
**COMES WITH
FREE
PHOTON PAINT**

- Comes complete with Photon Paint Illustrator Software.
- Huge range of features.
- Top selling graphics package.



... NOW A TRUE OPTICAL MOUSE! FOR THE AMIGA

- **YES A FULL FEATURE OPTICAL MOUSE FOR YOUR AMIGA - THAT MEANS NO MOVING PARTS!**
- Incorporating full optical tracking and counting - no ball so no problems with clogging, slipping, etc.
- High count output for very fine movement.
- Two button microswitch action.
- Direct replacement for all Amigas.
- Comes complete with special "Optical Pad".
- Superbly styled - supersmooth shape.



- Moulded to fit the hand, perfectly ergonomic design.
- Comes complete with moulded 9 pin connector.
- Supplied with FREE mouse holder.
- No more to buy!!

COMPLETE ONLY £39.99



HOW TO GET YOUR ORDER **FAST...**

TELEPHONE (24 Hrs) - 0782 744707 - CREDIT CARD ORDERS



WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS. ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs. ALL PRICES INCLUDE V.A.T. UK ORDERS POST FREE/EUROPE ADD £1/OVERSEAS ADD £3. PRICES AND SPECIFICATIONS CORRECT AT TIME OF PRESS AND SUBJECT TO CHANGE WITHOUT NOTICE. CALLERS WELCOME - Please reserve goods by telephone prior to visit. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

DATEL ELECTRONICS LTD.,

GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT, ST4 2RS, ENGLAND
TELEPHONE SALES ONLY 0782 744707 FAX 0782 744292 TECHNICAL/CUSTOMER SERVICE 0782 744324

Improving on P.D.

This month Peter Wright gets down to business with P.D. spreadsheets, databases, and word processors

First, let us consider exactly what the above mentioned programs actually do. If you're new to computing then defining what they do may cause you more trouble than ordering a Big Mac in Mongolia!

Spreadsheets

A spreadsheet consists of horizontal lines ('rows') and vertical lines ('columns'). Where these intersect is a 'cell' and its address can be worked out from

"The whole spreadsheet may well be larger than the screen display, you scroll around it in much the same way as you scroll through a text file although, with a spreadsheet, you will also scroll from left to right as well."

which row/column it is sitting in. If you imagine a sheet of graph paper, then all the little squares are 'cells'. As the whole spreadsheet may well be

larger than the screen display, you scroll around it in much the same way as you scroll through a text file although, with a spreadsheet, you will also scroll from left to right as well.

A cell can contain three types of entry. The first is a 'label', ie, text which can be a heading for a row or column. For example, the name 'TOTAL:' next to a cell in the middle of the spreadsheet.

The second is a 'formula', i.e. the contents of that particular cell is calculated from the contents of other cells within the spreadsheet. For instance, a column might contain all the payments made during a week's trading. You would like to add up all of these, so you would enter a formula in a cell (probably underneath the aforementioned) something like @SUM(B2..B22) and, if you have entered the amounts in cells B2, B3, B4 etc up to B22 then the cell containing your formula will instantly add up and display the total for that particular 'range' of cells.

Spreadsheets work in memory

The more memory you have then the bigger the spreadsheet you can work on. Obviously, if you just want something to work out your current account at the bank then

you do not need a spread-sheet that can contain umpteen million cells! (Nor a memory the size of a planet!)

When you have finally got the spreadsheet set up you will doubtless want a hard copy (a print out) of it. As they are usually wider than a printer can cope with, they are printed out in strips which you then stick together to create your complete printed spreadsheet. (The two that I use, DigiCalc and Analyze! work like this).

So, what's available on PD? As usual I'll stick to Fish disks. (Although I'm sure there is someone out there saying "Oh there's a much better one on PlonkerVille Disk 3333!" - Tough!)

Well, to be honest, there is not that much available. What there is is something basic to something which is a real biggy.

(As B2B22 is known.)

Different spreadsheets require different syntax, i.e. the way it is written, but all follow the same general rules.

The third type of entry is 'data' which is simply the figures you enter and on which the spreadsheet works on.

Vc.....

.....on Fish 53, is a basic 'VisiCalc'-like spreadsheet that supports a maximum of 40 columns and 200 rows giving you up to 8000 cells. This is more than enough to get the hang of spreadsheets with. The program comes with brief but clear documentation and works from either the CLI or the Workbench. In an early program like this no use is made of the mouse or menus but you will find that when using a spreadsheet all you want to do is enter commands at the keyboard.

The only thing I didn't like about 'Vc' is that it defaults to the American keyboard and I found no way of getting a " sign. Direct printouts are not possible so you have to save the spreadsheet as a text file which you can then edit and print from. Apart from these two irritations I would recommend 'Vc' as a good starter to the fascinating world of spreadsheets.

Analyticalc.....

.....is big! In fact it is huge. This is at the other end of spreadsheets in that it will support, memory permitting, a maximum of 18,000 rows by 18,000 columns giving a cell total of well over 300 million!! The program is so big that, together with its documentation, source code etc, it is distributed in a compressed format using either ARC or ZOO. Read

"When something as POWERFUL as this is free then you can't really moan can you?"

the ReadMe files for instructions on how to decompress it.

This program is reputedly the most powerful spreadsheet available for the Amiga either on PD or commercially and, judging by the documentation, it must be! It is written in Fortran and, as the source code is supplied, you could alter it to your heart's content and even integrate it into your own programs. (On the condition, I suspect, that

you have a brain the size of a planet!).

To run it you will need over half a meg as the program alone needs 300k bytes of virtual memory. The number of commands, formula that can be entered, documents etc is mind boggling! When something as POWERFUL as this is free then you can't really moan can you? Check the Fish disks for the latest version. The one I tried was Version24-01A and came from Fish 328.

Not really spreadsheets but in the same vein are programs which have a general 'Account' flavour. These can help with your home accounts (cheque book), keeping track of your shares etc. Here are brief details of just a few.

Bankn.....

This is a program which records your cheque transactions on Version 1.5 is on Fish 163. Bankn is actually made up of seven programs all of which are supplied with detailed instructions. These documents can be accessed from within the programs themselves which is REALLY useful. It is an American program therefore you do not get a full sized screen but, as the program is SO good who cares? An excellent program that does exactly what it sets out to do.

Clerk.....

Version 3.1 is on an ICPUG disk (Business-3) but not on Fish (yet). Sorry! It is described as a "Small Business Program". It will deal with accounts payable, accounts receivable, general ledger etc. I found it rather fiddly to set up and, although it makes extensive use of menus, there is no file requester. Loading a file entails entering its name (together with its full path). It seems to be written in some sort of compiled basic (no source to check this) judging by the number of fatal errors it threw up when trying to get it going.

StockChart.....

Also known as Stock and also to be found on ICPUG-Business-3, this program performs technical analysis on stocks and shares. It is cute, menu-driven and comes complete with easy to understand documentation. If the 'market' is your scene then give it a bash!

Ledger.....

Again from ICPUG this one keeps a track of your bank accounts. It is easy to use, prints out statements and the supplied documentation is nice and concise. Simple and useful.

PennyWise.....

This is from Fish 272 and is a cash-book program for keeping track of all your home accounts. It is PAL so you get a full screen and it uses Intuition to the full. On screen help is an asset with any program and help files included with PennyWise are excellent. To browse through your previous transactions 'video recorder' buttons are used. (A la 'Superbase Personal'). To get you into the swing of things a good working example is included. User definable configurations can be loaded and, as a bonus, the wait pointer is cute! All in all an excellent program

Databases

And what is a database? Easy - put in as much information (data) as you like and pick out (using filters) just the information you want. Databases work by you defining 'fields' within a 'record'. The database consists of many records all containing the same pre-defined fields.

"The database consists of many records all containing the same pre-defined fields"

The GURU even paid a couple of visits! Not for me but could be handy should you have a use for it.

For instance, a database containing addresses would contain individual records, each containing a name and address plus whatever other details you want. Once the information has been entered for one record it is saved and you move on to the next record. An index is built up on one (or more) of the fields as you go.

On an address database you may well build the index on the Surnames field. The more fields in each record then, clearly, the more selective you can be when extracting records which fall within the parameters you define. With fields for age,

up whereby the album details are extracted from one file whilst track details for that album are drawn from another. The

pre-requisite is that each file MUST contain common data in one of the fields. The catalogue number of the records would be a good example as this could be used in a field of both the Records and Tracks data-files.

Again, there are few 'real' database programs on PD but the star must be..

make

of car,

sex etc,

records can

easily be ex-

tracted for males

aged 33 living in Col-

chester and driving

Volkswagen Polos. (That is

how you get so much junk mail

through your letter box!). See how

they work?

A database file I compiled contains well over 2,000 records of Public Domain material and, by having a field 'Type' I can extract the locations and details of the programs that are in this category.

Another one I use is for my record collection. If anyone wants a listing of what L.P.'s I've got I just print out the

***"Records can easily
be extracted for
males aged 33 living
in Colchester and
driving Volkswagen
Polos"***

contents, selective or otherwise, of that database file.

I use Superbase Personal which is a 'Relational Database' which means that more than one data-file can be scanned for information (and output). An example would be where I had a file containing details of my L.P.'s' and another containing all the tracks and times. A 'Query' (used to extract information) can be set

RIM.....

.....(Fish 143). This is a 'relational database' ('Relational Information Manager') by the same chap as Analyticalc (Glenn Everhart). The original program was written for mainframe computers at Boeing! Again, this program is 'ARced' to fit on a floppy and contains source code, manuals, documents etc etc. In fact, the manual runs to 16,000 words! However, it is VERY powerful and as the source code is also included (Fortran 77), the program can be integrated with other applications of your own.

All commands are typed in, there being no 'friendly Intuition interface' but, if you've a use for something so powerful, this is the 'bee's knees'! (Personally, I'll stick to Superbase.)

HyperBase.....

Version 1.6 of this is on Fish 131. It can be run from the CLI or Workbench and is a good, basic database program. Although it uses pull-down menus there is no file requester (a pity) so file names must be typed in: better keep them simple!

Documentation runs to about nine pages and is fairly explanatory. I found setting up a new file a bit long winded and in the end just edited one of the examples. This worked O.K. If you're after something simple but still fairly sophisticated then HyperBase can be recommended.

AmiDex.....

Not really a database but AmiDex (ICPUG-Business-3) is marvellous for

keeping track of all those names and addresses you keep losing. The card shaped window of AmiDex appears on the Workbench after starting it from either the CLI or its own icon. Pressing the buttons allows new entries, scrolling through existing records, printing out (with a great degree of control), outputting to a file (for editing and later inclusion with a Mail Merge utility) etc etc. As a Workbench based address book utility this takes some beating.

Word Processors

I suppose I had better define this now! You must have used 'Ed' by now if only to alter your startup-sequence. Ed is a text editor, albeit a very basic one. Use a better editor and you can keep banging in your text until it scrolls out of sight and into the far distance. The trouble is when

***"Use a better editor
and you can keep
banging in your text
until it scrolls out of
sight and into the far
distance"***

you come to print it out. An editor may be able to stop words at the end of a line being cut in half ('word-wrap') but how does it know where to allow for the pieces of paper on which you are printing? And what about bold or italic text? Headers (titles at the top of each page)? Footers (titles at the bottom)? Page numbers? Text justification? This is where a word processor differs from a text-editor.

Text editors are marvellous if you are into programming as they just create a continuous text file which is, after all, just what you want for source code. They offer editing ('Cut' and 'Paste' etc) and 'Search' and 'Replace' facilities plus many others. However, if you are writing a book or even a long letter then you want something that will allow for page breaks and, in the case of books especially, allow headers, footers and page numbering.

On Fish I have never encountered a true 'Word Processor' although

AmigaFox (Fish 315) is described as such.

AmigaFox.....

.....is a German program that is supplied with several versions for PAL or NTSC users and English or German speakers. The English manual is written in pidgin English and takes a fair bit of deciphering! It contains a file requester but will only allow access to df0:, df1: and dh0:. The program contains on screen help but is a bit buggy in places.

AmigaFox works like a normal text-editor using its own supplied font. Once you have entered all your text you must select 'Convert' from the menu and the text is then converted to a graphic format. This can then be incorporated with graphics which can themselves be imported into the graphics editor. Any graphics so imported are shaded into a black and white version of the original. Drawing tools are also provided in the editor.

Printing makes use of AmigaFox's own driver and only an Epson compatible one is supplied. One HUGE bug is that not all the keys type what is on them! Lower case letters are O.K. but capitals are all over the place. This is version 1 - pray to God that version 2 is an improvement! I would call it a 'poor man's ProWrite' but surely no-one is THAT poor? A program to avoid!

Really, that is about all I could find in the way of 'Word Processors' on Fish. All the rest are text editors although, with a bit of patience, these CAN be used as Word Processors. Just work out page breaks for yourself! I suppose we had better have a look at the pick of the editors then....

"He must be one of the most prolific software writers on Public Domain"

Dme...

'Dillon's MicroEmacs'. One of Matt Dillon's programs. He must be one of the most prolific software writers on Public Domain. This one comes with the usual REAMS of source code and as such, any of his programs are worth getting just to see how to program!

He must be one of the most prolific

software writers on Public Domain

This program uses no menus, no mouse and is NTSC screen only. However, it is quick - very quick. Dme is aimed, primarily, at programmers who want some-

thing that is FAST and whose functions can ALL be accessed from the keyboard. The trouble is that, for the likes of you and me, there are dozens and dozens of new keyboard commands to learn. Personally, I couldn't be bothered!

Jed.....

Jed, on Fish 297, is an editor that is user configurable. You can set up your own macros, hot-keys, screen colours etc. The window is NTSC only and is not resizeable. Text scrolling is very jerky and I didn't like the program at all! Another one to avoid.

Med.....

Version 2.1 is on Fish 60 - rather an old program. With this you can edit up to 32 text files simultaneously. As you open a file it's name is automatically added to the menu for later (and instant) recall. The screen automatically configures to PAL, print-out is available and text selection is by 'point and drag' - far better than 'block markers'. The search and replace is very quick and this, to me, is as good a benchmark as any of an editor's speed. All in all a fair program - infinitely preferable to Jed.

Mg1b.....

'MicroGnuEmacs' from Fish 131. Bags of source code for you budding programmers plus lots of info should you wish to recompile it. It also contains an ARexx port. (I might get round to ARexx one day!) I didn't like it.

Textra.....

Textra on Fish 239 is a very good text editor. It uses a nice file requester and like Med, file names are added to the menu as they are opened. text selection is by 'point and drag' but this program had a few bugs. The GURU called on a

couple of occasions! Not bad though.

Uedit.....

The latest version (2.5d) is on Fish 301. It is 'shareware' and until you send the author \$25 you will not get the full version with all the features enabled. It is described as a 'Text Editor for the Technical User'. The program is customizable to an astonishing degree - in fact it is awesome just HOW much it can be

"The program is customizable to an astonishing degree - in fact it is awesome just HOW much it can be configured to the user's requirements"

configured to the user's requirements. Automatic PAL screen, excellent tutorial, iconifiable (shrinks to a small Workbench 'icon' when 'asleep') etc etc. Just think, with this program you could configure it so that you could write your source code, check it, compile it, link it and then run it all from within Uedit! Amazing!

This really is an excellent and powerful program. If you like this one then it is well worth \$25. For a good example of just how much it can be customized see also UeTurbo on ICPUG-Text-2.

Az.....

I thought I would leave this until last as it is my favourite. The program is French but comes with both that and an English version. This time the author IS fluent in another language and so the brief but concise notes are very helpful. 'Az' is iconifiable, works with multiple files (including binary!), multitasks and the actual code is 'Pure', i.e., once loaded the program is a 're-entrant process'. The scrolling is beautifully smooth, the file requester excellent, search and replace very quick.... Excellent! This one is strongly recommended.

P.W.

CDL A1500

Checkmate Digital bring you the Ultimate peripheral for the A500. The A1500 Mini-Workstation

CDL A1500

A1500 Workstation Examples

Home Station :-

A1500 Base Unit with 1 Meg Amiga
Internal second Floppy Disk Drive
Commodore A1084 Stereo Colour Monitor
Only £ 969.00

Business Station :-

A1500 Base unit with 1 Meg Amiga
A590 Hard Drive 20 Meg with 2 Meg Ram
CDL A590 internal fitting Kit
Commodore A1084 Stereo Colour Monitor
Only £ 1395.00

New A1500 Base Unit Price Pre- Xmas Offer !! £199.00 inc vat !!

CDL 68030

Ram Chip Prices

256x4 (A590 etc) £49.00 / Mb
B2000 Ram, 2 Meg £112.00
A3000 4 Meg of 1Mb x 4 £299.00

Colour Monitors

Commodore A1084S Stereo	£ 249.00
NEC Multi-Sync 2A	£ 399.00
NEC Multi-Sync 3D	£ 549.00
Microway Flicker Fixer B2000	£ 299.00
Microway Flicker Fixer A1500	£ 349.00

Hard Drive Systems and Ram Cards

A590 Adaptor Kit (A1500)	£ 99.00
A590 20 meg drive 0K Ram	£299.00
A590 with 2 Meg ram	£399.00
ST506 Hard Drive 44Mb (A1500)	£499.00
ST506 Hard Drive 66Mb (A1500)	£549.00
Spirit Inmate SCSI Controller + 8 Mb Ram	
Board 2mb installed + optional 68881	£299.00
Spirit SIN500 2 Meg Populated	£199.00
Spirit 512K Ram card inc. Clock	£ 49.95
Spirit Fat Trapper 4 Meg Card un-populated	£ 99.00
Floppy Disk drives 3.5 inch	£ 79.95
150 Watt Power Supply	£ 69.00

!! Ring for prices and details of the latest A500 packs !!

Cheapest 68030 Card In The World From C.S.A.

AT THE 16 BIT SHOW IN JANUARY, WE WILL BE SELLING THE LOWEST PRICED EVER 68030 ACCELERATOR CARD FOR THE A500 AND B2000 RUNNING AT 25 MHZ. THE PRICE STARTS AT AN AMAZING. **£ 375 inc VAT**

Forget all the other slower and more expensive 68020 cards. Now you can have A3000 performance with a sensible price tag. This card has sockets for the 68882 Maths processor allowing speeds of upto 50 MHz, and for 32 bit SRAM.. Ring about our 33MHz 68030 cards, and our wide range of 32 Bit Ram Cards, which allow upto 8 Meg.

200 Mb SCSI Drive £ 499.00

Includes case, fan, leads, and power supply



80 Mildmay Park, London, N1 4PR
England.
Tel 071-923 0658
Fax 071-254 1655

CDL A1500

Can't afford the initial cost of the A1500 system, but you need the separate keyboard. Why not buy the A1500 keyboard kit, this includes all the cables, and the Keyboard case of the A1500, plus the blanking plate for your A500. **£59.95 + P&P.**

But that is not all, should you decide to upgrade to the full A1500 system, then Checkmate will give you a **20% discount** on the full price, for the balance of the kit.

All Prices include Vat but exclude P&P

Ask MMG about Project X

AMIGAVISION

Multimedia producer Alan Puzey examines CBM's exciting new authoring system to see if it comes up to professional standards

It's not often that programs of the stature of DeLuxe Paint come on the scene, but I believe we may be seeing such a program evolving now. Just as DeLuxe Paint was a great utility from the word go - and considerably improved by version three, AmigaVision shows that same promise.

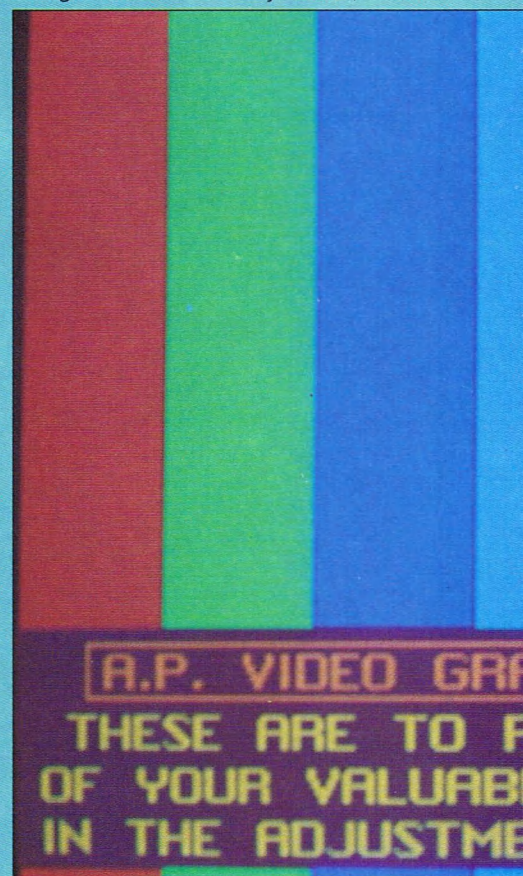
Having got to grips with the initial version, I am already using it professionally, and will shortly be removing Lights! Camera! Action!, DeLuxe Video and The Director from my hard drive, consigning them to the "use if necessary" box! AmigaVision is supplied with the Amiga 3000 or available separately, and is designed to present multimedia in an interactive environment. Commodore are obviously hoping to develop the Amiga where it has always had the most potential - which is the multimedia environment. "Eh, hang on," I hear you saying, "what are these multimedias and interactive environments!?" Well, long standing Amiga users will already know that its graphics and sound capabilities are what makes the Amiga the attraction it is, and multimedia uses these, as it is basically the presentation of pictures, graphics, sound, music, video and animations. Years ago, as a multimedia producer, I used video recorders, film projectors, photographic equipment, audio tape recorders and a vast range of control and peripheral equipment to produce multimedia shows. More recently, with the introduction of interactive sys-

terms - which meant that the viewers (or audience, or students) could interact with the programme, controlling its apparent content and the pace of presentation - extremely complicated and expensive computer control equipment was also necessary. However, these days, the computerization of these techniques has developed apace recently, culminating in this system for the Amiga, which puts professional quality interactive multimedia within the reach of us all.

“Initially, you use your favourite programs to produce the pictures, graphics, animations and music that you wish to incorporate in your presentation”

Why would you use it? From a professional point of view you may want to produce interactive training programmes, sections of mixed animation, graphics and sound for use within a video production, or 'point-of-sale' displays where the customer can obtain information about the services available. The public are becoming increasingly familiar with these, particularly the latter which are now found in many libraries and building societies, for exam-

ple. From a hobbyist point of view, AmigaVision is simply a great way to present whatever mix you want of pictures, animations and sound, or you can easily produce trivia or knowledgeable quiz games, for distribution amongst other Amiga users. In my case, I find



AmigaVision far easier to use for such purposes than Amos, though some devotees of that program may disagree. What cannot be disputed is the fact that AmigaVision uses an intuitive approach where no programming knowledge is required, unlike Amos.

So, how does AmigaVision do it? By simple, iconized control of the content and flow of your material, although BASIC type language is supported, and used to produce command statements for more advanced use in the production of intricate branching programmes. AmigaVision comes on four disks (boot-up, program and two example disks) with a comprehensive ring-bound manual. After booting up the program and loading the six examples in the normal way; viewing these

two or three times will not only give you a very good idea of the program's potential, but enable most Amiga users to produce simple AmigaVision programmes almost instantly, without recourse to the manual. It's that easy and intuitive.

The simplest way to explain AmigaVision is to go through the production of a simple audio-visual presentation. Initially, you use your favourite programs to produce the pictures, graphics, animations and music that you wish to incorporate in your presentation (eg. DeLuxe Paint and DeLuxe Music). These individual component parts are then assembled within AmigaVision as follows.

The first screen which AmigaVision presents you is a flow window with a 'main menu' band of icons along the bottom of the screen. Clicking on any of these icons, other than the trashcan, offers a new band of icons related to the one chosen. For an audio-visual presentation the AV icon is chosen and this reveals Screen, Sound, Speak, Music, Gfx, Brush, Video, Anim and Text icons. These icons are then dragged to the required position in the flow window, as in the illustrations, to



form a flow chart. Icons are related to one another in AmigaVision and termed as sibling, parent, child or partner icons. They are restricted in their positioning to one another and if they are placed incorrectly in the flow window, an error/help message is displayed. Icons are executed from top to bottom and contained within the module icon, which in effect is the title/shell for the programme you are making. Looking through the examples will give you a good idea of icon relationships.

“The animation and transition can be previewed before closing the requester (or doing more alterations), and going on to the next icon”



Double clicking any icon will reveal a requester panel. It is within these panels that all conditions are set. As these are numerous and comprehensive, only the major ones will be discussed here. Ignoring the basic module icon, double clicking the Anim icon brings up its requester panel. Here the animation file and its path are called up and routed via the Directory gadget. It is named for easy recognition within the flow window, and any useful memos added. The pointer may be kept or removed from the screen. Exact positioning of the animation or a picture on the screen is defined using the left and top gadgets. The Transitions gadget provides a wide range of transitions between scenes, at varying speeds. Some of these will appear bizarre if succeeding pictures do not use the same palettes, as is common with other slideshow programs. Finally, the animation and transition can be previewed before closing the requester (or doing more alterations), and going on to the next icon. Should you require any assistance, there are numerous help gadgets that may prevent you having to go back to the manual.

Double clicking the Speak icon produces a similar requester. Here one may select an ASCII text file to be spoken by the Amiga's built-in speech synthesiser, or type in the text directly. Again there is a range of gadgets to modify the speech characteristics and to loop or repeat if required. Double clicking the Screen icon brings up a similar requester to the Anim icon. Interlace or overscan can be chosen, the palette adjusted and the screen resolution set. The latter is a useful function - used with the left and top gadgets, enabling 'small' pictures to be accurately placed anywhere on the screen. Further down the flow window is a Sound icon and the requester for this shows gadgets for directories, stereo or mono, repeated plays and looping. Digitized sound files of the 8SVX format are required to work properly within AmigaVision. Other sound files will almost certainly be rejected.

Elsewhere, within this audio-visual module, I have used Gfx and Music icons. The graphics requester allows control of colour cycling within a picture and the use of Objects.





62 Tenter Road,
Moulton Park Business Centre,
Northampton, NN3 1AX,
England

Tel: (0604) 790466
or 081-941 6117
Fax: (0604) 647403

THE GENLOCK PEOPLE

FRAMEGRABBER

A new, fast, real time video image digitiser for the Amiga. "Marcam's Framegrabber currently represents the state of the art in Amiga video digitising technology...the quality of grabbed images is just amazing"

*Amiga Format magazine review,
February 1990.*

PRICE
£575.00

FRAMEGRABBER 2.0

Framegrabber 2.0 has hundreds of new software features such as: shrink, zoom and magnifies to any size. Prints images directly from FG software, mirror image feature for creating silk-screen applications. Framegrabber supports full 24-bit, true-colour images, and new file formats: DV-21, IFF-24 and config. Files. Several extra image processing features include sharpening & blurring as well as line-art and negatives of images. The new palette lock system matches palettes and facilitates use with genlocks.

Marcam's FrameGrabber is the answer to every Amiga owner's digitising dreams.

Marcam's unit currently represents the ultimate in Amiga video digitising.

Amiga Computing - October 1990

VIDEO TITLING PACKAGE TELETITLER

£30.00

An error by our purchasing department. This is technically great, but a nightmare to use. The manual is awful, and we just want to make space on our shelves. We can offer no backup, no returns, no guarantees, just a very tempting price!

PRICES INCLUDE VAT & DELIVERY

All our products carry a 12 month warranty

GENLOCKS

RENDALE 8802

£249.99

RENDALE 8806

£862.50

ULTRADESIGN

A high-end professional CAD system that even a novice can use! UltraDesign features configurable parameters to suit any standard. You can choose between real-world units; Metric or English, and select screen colouring by pen style, group or layer. Other features include true hatching and filling (40 hatching patterns), auto-dimensioning, up to 65,000 layers (limited only by memory), user definable keyboard commands, full parts library support and much more. A separate output program allows multiple drawings to be scaled and plotted on a single sheet of paper, or on several sheets to create a mural sized drawing. UltraDesign also includes a program for converting files to and from other formats: IntroCAD, AutoCAD, HPGL, DMPL. UltraDesign runs on all Amiga computers with one (1) or more Mbytes of memory.

PRICE
£249.99

3D PROFESSIONAL

3D Pro represents the state of the art in Amiga rendering packages. The program is initially daunting, but once you've got the hang of it you'll be churning out complex ray traced images in no time.

Highly recommended - Amiga Computing October 1990

Powerful polygonal rendering techniques allow you to create stunning 3 dimensional images and animations quickly and easily. 3-D Professional combines power and performance with an intuitive interface that gives the Amiga user complete control of the entire object rendering and animation process. Use the mouse to manipulate every aspect of an object: size, rotation, surface lighting, colour, etc. 3-D Professional then lets you choose between several advanced rendering techniques for displaying your objects in spectacular 3-D form!. Also, create impressive backgrounds with fractal landscapes, trees and clouds.

Putting your objects into motion is a breeze with 3-D Professional's animation facility. Arrange individual frames automatically or manually and add them to your animation with a key stroke. If you need to make changes you can cut and paste, edit and manipulate frames with 3-D Professional's stand-alone animation editor. 3-D Professional is available for all Amiga computers with 1 or more Mbytes of memory.

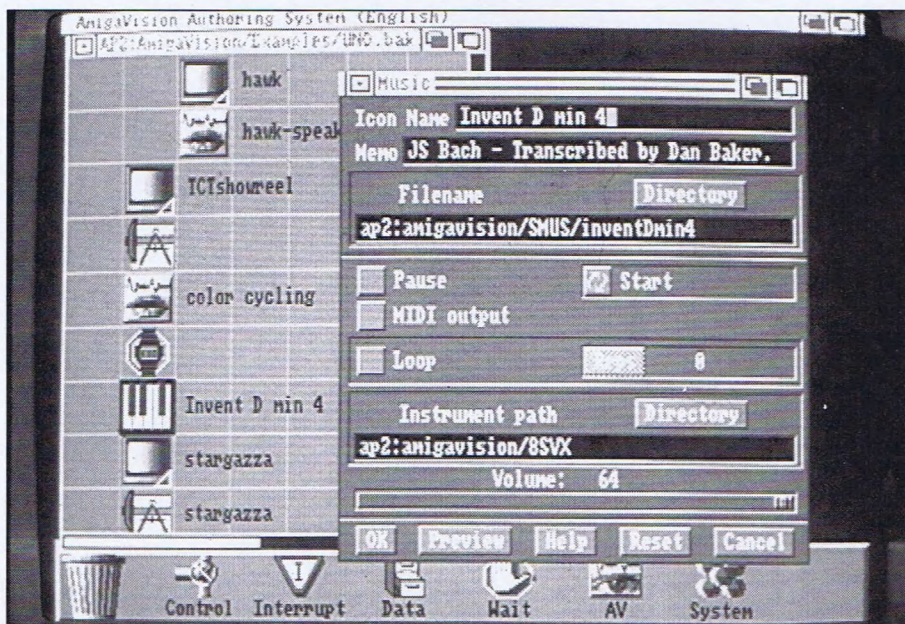
PRICE
£299.99

SUPER VHS GENLOCK

The new Super 8802 from Marcam Ltd. will be launched at the November Commodore Show. Prices are yet to be fixed, but the unit can be purchased either as a complete product or as an upgrade to an existing 8802. Come and see the new machine on stand 48 at the show. Features include:

- ★ Super VHS in and out
- ★ Composite in and out
- ★ Fade video to black
- ★ Fade Amiga go black
- ★ Cross Fade
- ★ Cross Wipe
- ★ Mode selection switch
- ★ Foreground/background mode
- ★ Fade out Amiga
- ★ Fade out video

STAND 48, COMMODORE SHOW



Objects are extremely useful in more advanced AmigaVision programmes, and can be produced using the Object Editor. The Object Editor, which crops up in many of the requesters, is like a basic drawing program. Simple shapes, such as rectangles, circles and polygons, and imported DeLuxe Paint brushes, are used as hit boxes. They can stand alone on the screen, or be superimposed on a background picture. There is a good example supplied with the program where the user is presented with hit boxes in order to select a picture demo, sound demo, animation demo, a combination of all three, or to quit. The mouse is used to click on a hit box and cause the programme to take that particular action. This is the fundamental procedure behind branching programmes. An

"The final 'flow chart' of your application can be printed out, either in graphic form as it appears on the screen, or in text form"

alternative Object is a text box, which either invites input via the keyboard or provides the user with text material.

The Music requester provides directories for SMUS music files and instruments. This aspect of AmigaVision has given me the most problems in use. The gadget for the instrument path does not seem to work as smoothly as the others and throws up a lot of error messages. This is further complicated by the rejection of most of my music files on the grounds of them not being true SMUS files or that they are crunched. For those with Midi units, they are fully supported by AmigaVision.

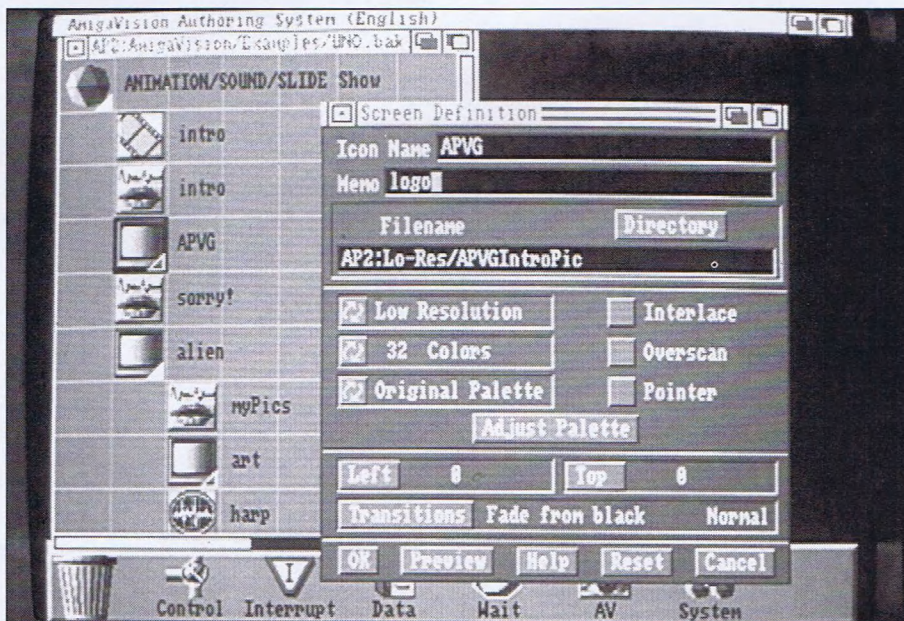
The finished module is then saved in the normal manner. There is a useful facility within the main pull down menu to install a disk and save your programme to it, with all the relevant components put in new directories and the relevant new paths formed. To show the presentation, Present is selected from the same pull down menu. The final 'flow chart' of your application can be printed out, either in graphic form as it appears on the screen, or in text form. A very useful aid for trouble-shooting or planning new applications

So, that is an example of the simplest use one can make of AmigaVision; Amiga User International will no doubt cover the more advanced routines in later issues; space in this article allows only a summary of the numerous other functions available. Referring back to the main menu at the foot of the opening screen, the following additional functions are available. Clicking the Control icon brings up a range of Call, GoTo, IfThen and

IfElse routines. These are used to govern the flow of AmigaVision programmes by providing complex branching and looping facilities. The Interrupt icon brings up Keyboard and Mouse icons which in turn, invite the user to interrupt the programme by specific key presses or mouse clicking. The Data icons refer to data bases that can be utilized within a programme. One of the example programmes provided invites the user to click on areas of the U.S.A., whereby AmigaVision uses a database to put the name of the relevant State, together with the Capital City, on the screen. Databases may be created within AmigaVision or imported from Superbase and DBase3. This facility merits an article on its own and is an essential ingredient of a professional multimedia program. The Wait icons pause the programme until specified conditions, or a user response, are met, or they may simply control the time period that a picture appears on the screen. Module icons are used to tidy up the structure, flow and timing of your application.

"Commodore have a number of improvements and additions in the pipeline"

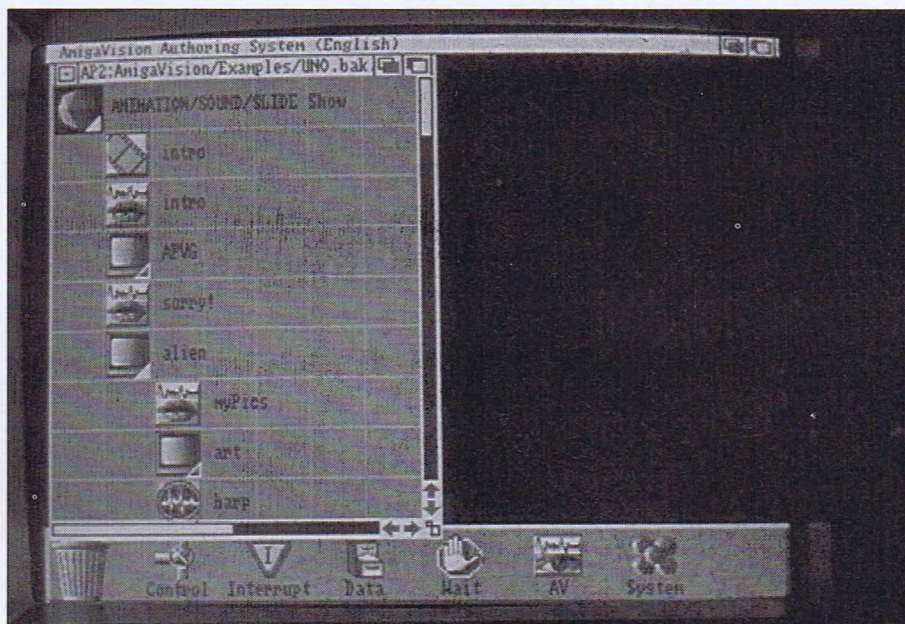
AmigaVision merits a hard drive and lots of memory (one meg. minimum is recommended, as usual), though it certainly operates on floppies, with the minimum. A useful function here, within the pull down menu, is the Content Window. Similar to the Flow Window, it may be used to import all those components such as pictures, music and text, from which floppies they are on, into this central area for easy transfer into the Flow Window. Naturally, when using a



hard drive containing all your component parts for a particular application, it is not necessary to use this function at all.

Summarizing my impressions of this great program, I particularly liked the overall program, its aims and its mode of operation. It is highly intuitive and easy to use for basic productions, whilst for advanced applications - the facilities for database use, feedback in testing and the use of wild cards for answer strings provide essential features. Also, the AAAE Player Device, produced by Ariadne for their own original multimedia program, is included. This is capable of controlling a variety of videodisc players, incorporating still frames or video sequences into your programmes. A videodisc player being one of the two items of equipment to which I do not have access, I have not as yet tested this function. The other item that I don't have, but which is supported by AmigaVision, is a touch screen. This is another example of the professional approach behind this program, as touch screens are a fundamental part of interactive multimedia, and probably provide the most common interface with which the public use such interactive programmes.

There were a few mistakes in the manual, but this is the first version, and there was a useful question and answer section. When installing on a hard drive, be careful which fonts are in your font directory, as the AmigaVision examples expect certain fonts to be there. I would like to see music



files other than SMUS supported, as many Amiga users find other systems such as SoundTracker and MED easier to work with. On my particular copy, some of the error messages flashed onto the screen too fast to be read; maybe this was a bug? Whilst speaking to one of the developers of AmigaVision at the recent Computer Graphics Exhibition, it was obvious that Commodore have a number of improvements and additions in the pipeline. One

example of future development, was a data disk of useful pre-formed Objects. Such improvements will enhance AmigaVision as later versions surely enhanced DeLuxe Paint. As I said at the beginning of this article, I am already using this program professionally and am sure it will become the standard Amiga multimedia program. Thoroughly recommended.

A.P.

COMPUTERS IN THE HUMAN CONTEXT

Edited by Tom Forrester (Basil Blackwell H/B 340, P/B £16.95)

But how many of the owners and managers of businesses, both large and small, who have installed computer systems know exactly how using them affects their employees, both organizationally and socially? And are they sure the systems they have are being used to their full potential? With the enormous amount of over £200 billion (\$300 billion) a year being spent worldwide on computers and communications hardware and software it is surprising that comparatively very little has been written about the social consequences and possibilities of the present day information technology (IT) revolution.

This book has brought together a collection of essays and studies by some of the experts, (and there are, apparently, only about 300 or so), on the subject of computers and society.

The general consensus seems to be that 'many companies and institutions are not using IT effectively because they have ignored or underestimated the importance of the human factor'.

Alvin Toffler's vision of 'electronic cottages' where employees worked from home rather than go into the office each day has not materialized as quickly as was expected when it was first mooted

possibly, as Forester says, because of the psychological problems involved. People like working with other people and will put up with the misery of daily commuting because the company of others finally outweighs the solitary life. That is not the only reason, of course. Many homes, because of their size or environment, are unsuitable for a 9 to 5 day to be worked in. Children, spouses, even animals, demand attention and some people are without the self-management skills and disciplines needed to work alone. So productivity drops and output falls way below what was at first predicted.

But new technology does not always work successfully in a commercial or industrial environment either. And the reasons are many and varied. Insufficient training and support, inefficient selection and recruiting, inexact job design and structuring, even health and safety and ergonomics can play a part. Most importantly, it seems, human resource specialists are seldom involved at an early enough stage.

The book is divided into four parts. Computers and — Society, People, Organizations and The Future, with for and against on all the subjects. I must admit I found some of the essays hard going but, on the whole, the majority were informative, in-

teresting and highly readable.

Some surprising hypotheses are formulated and discussed, while some of the information furnished is an eye-opener. Did you know that the French have a system called Minitel, an electronic telephone directory, which is distributed free to their telephone subscribers and provides access to more than 4,500 consumer services 24 hours a day? How about that British Telecom?

There is also a list of selected further reading on all the issues presented, for anyone who would like to take their knowledge beyond that included in this book.

In 548 pages Tom Forester has gathered together an enormous amount of information and, possibly because of this, it caused the only thing to which I took exception. The print is exceedingly small, making prolonged reading an effort. That apart, this is an invaluable anthology of works on the pros and cons of our hi-tech age.

As Forester asks, 'Is our future being determined by technology or are we to some extent free to choose and shape the future?'

'Computers in The Human Context' may help you to decide.

D.M.



TEL: 0983 79496

ACCOUNTS		Sculpt 3D XL	99.82	Tiger Cub	59.80
Arena Integrated Accounts		Sculpt Animate 4D	329.82	SPREADSHEETS	
Cashbook Combination		Sculpt Animate 4D Junior	84.87	Advantage	
Desk Top Budget		HARDWARE		DGCalc	
EasyLedgers Integrated		1.3 Kickstart Rom	29.90	Superplan	
Home Accounts		A500 Ram Clock/Switch	39.79	UTILITIES	
Personal Finance Manager		CMOS Chips 256x4	6.90	Amikit For Beginners	
Service Industry Accounts		Disk Drive 3.5 Ext Metal	64.86	ARexx Macro Interpreter	
SBA Xira		Disk Drive 3.5 Int A2300	54.97	Award Marker Plus	
System 3		Podscat 12x12 Inch Tablet	199.87	B.A.D. Disk Optimiser	
BOOKS 40 lines stocked, please call		Citizen 124D	£239.89	BBC Emulator	
COMMUNICATIONS		Amiga 500	£359.95	Byte 'N Back HD Back Up	
A Talk 3		PACKAGES		CrossDOS File Transfer	
K Comm 2		Amiga Vision	99.82	Doctor Ami Drive Analyser	
Paragon BBS		Appetizer	29.90	DOS 2 DOS file transfer	
COMPUTER AIDED DESIGN		Gold Disk Office	109.94	DUDE Disk Manager	
Design 3D 1MB		Graphics Starter Kit	54.97	Dunlap Utilities	
Professional Draw 21MB		Publishers Choice	68.77	Mavis Beacon Typing	
X Cad Designer 1MB		Starter Kit	49.91	Virus Infection Protection	
DATABASE MANAGERS		The Works Platinum	99.82	X Copy Hardware	
Infolite		PROGRAMMING		X Copy Professional	
Mailshot Plus		AMOS Basic	36.80	Your Family Tree 2	
Microfiche Filler		Benchmark Modula 2	137.77	VIDEO (Also see Graphics)	
Prodata		Devpac 2	42.78	Credit Text Scroller	
Superbase Personal		GFA Basic Compiler	24.84	Deluxe Video 3	
Superbase Professional		GFA Basic Interpreter	39.79	Digi View Gold 4	
Superbase Personal 2		Hisoft Basic Compiler	56.81	Hitachi Camera & 16mm Lens	
DESKTOP PUBLISHING		Lattice C 5.1	164.91	Minigen Genlock	
Clip Art (7 PD Disks)		Pascal Compiler (PD)	£2.99	The Director	
Gold Disk Type: DTP		RIBBONS Please call		Video Titrer	
E Clips Structured Art		SOUND		Vidi Amiga PAL Digitiser	
Masterpiece Fonts		Audiomaster 3	59.80	WORDPROCESSORS	
Outline Fonts		A.M.A.S. Stereo Sampler	74.98	Excellence 2	
PageSetter 2 1MB		Deluxe Music	52.90	Kindworks 2	
Pagestream 1MB		MasterSound Mono Sampler	34.96	PenPal	
Professional Page 1.5MB		Midt Master Interface	34.96	Protext 5	
EDUCATION		Midt Plug Interface	24.84	Prowrite 3	
GCSE Tutors		Music X 1.1	99.82	Scribble Platinum	
My Paint		Music X Junior	64.86	Transwrite query	
EDITORS		Sound Trap 3 Mono Sampler	29.90	Wordperfect	
CygnusEd Professional 2		Richard & Angela Howe: Applied Research Kernel		Wordperfect	
GRAPHICS (Also see Video)		Corve Farmhouse, Chale Green, Ventnor, PO38 2LA, U.K.		Wordperfect	
Animation Studio (Disney)		POST UK £0. Software <1Kg Europe £5/item, World £12/item		Wordperfect	
Art Department		CHEQUES London Sterling to A.R.K. please (may clear)		Wordperfect	
Animagic Editor/Effects		DESPATCH From stock 24 hours, from supplier 48 hours		Wordperfect	
C Light		EXPORT & BFPO Remove U.K. V.A.T. (+Price/1.15)		Wordperfect	
Comic Setter		V.A.T. Prices include U.K. V.A.T. at 15%		Wordperfect	
Deluxe Paint 3 1MB		PHONE Monday to Saturday 10am to 7.00pm		Wordperfect	
Digi Paint 3		PRICES Are subject to change		Wordperfect	
Impact Presentations		Visitors are always welcome by appointment		Wordperfect	
Pixmate				Wordperfect	
Real 3D Ray Tracing System				Wordperfect	

A590 HARD DISC DRIVE

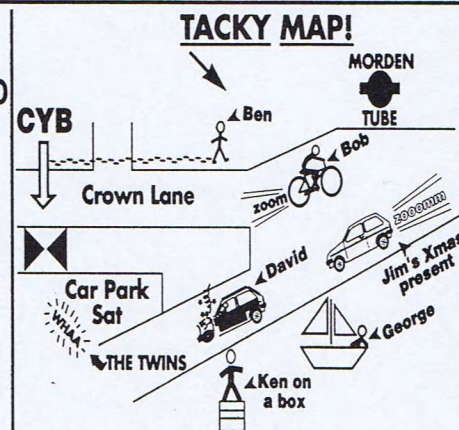
FOR THE AMIGA A500

ONLY
£250.00 PLUS VAT

**WE SPECIALISE IN
ANYTHING TO DO WITH
THE AMAZING AMIGA**

CYB COMPUTERS LTD
9 CROWN PARADE
CROWN LANE
MORDEN, SURREY
SM4 5DA.

TEL: 081 542-7662



SOFT EXCHANGE SPECIAL OPENING OFFER

3.5" DSDD DISCS WITH LABELS

Guaranteed 100% error free
All our discs are of high quality
Manufactured by Sony or Mitsubishi
Prices are inclusive of VAT postage & packing
Our price promise: if you can buy cheaper we will
not only beat the price but give you a free storage
box free with your order.

10 discs	£4.49
20 discs	£7.99
30 discs	£11.49
40 discs	£14.49
50 discs	£17.50
100 discs	£35.99
200 discs	£69.99
500 discs	£154.99
1000 discs	£294.99

Disc box 3.5" 100 capacity	£9.99
Disc box 3.5" 80 capacity	£8.99
Disc box 3.5" 40 capacity	£7.99

Send cheque/PO (NO CASH) to:
**Soft Exchange 1, 101 Clifton Road, South
Norwood, London SE25 6QA**

Access **Tel: 081 653 9094 (24 Hrs Answerphone)** **VISA**

BLITTERCHIPS

AMIGA P.D.

ONLY 95p EACH DISK

PLEASE ADD 50 PENCE TO THE TOTAL ORDER VALUE FOR P/P
LISTS OF OVER 500 DISKS AND ADULT DISKS SENT WITH YOUR ORDER

- | | |
|--|--|
| 4 Walker demo 1 terrific animation * | 444 Fillet the Fish, very good animation. |
| 5 Walker demo 2 as above but different * | 448 Teutonic music CD4, more good stuff. |
| 6 Kaktus & Mahoney music 10 tracks, brill. | 455 Kefrens Jukebox Music, very good. |
| 8 Muzzax 6, 12 tracks of great music. | 458 Castle of Doom, adventure game. |
| 12 Bootbench V2.0, demo or intro maker. | 459 Buggy Commando, playable demo. |
| 13 Larn an adventure game, good. | 450 Power Surge music disk 14 tunes, good. |
| 20 Forgotten realms slideshow, impressive. | 529 Amiga chart 3, music by Radio Poland. |
| 22 Kefrens mega demo 7, very good. | 528 Rebels Mega Blast, 9 fantastic tunes. |
| 24 Elvira game demo, terrific. | 522 Avirex Slideshow, great fantasy pictures. |
| 26 Juggler demo, an old classic. | 520 Alcatraz Mega demo. DEVILS KEY. 3 disks. |
| 31 The famous Probe Sequence. | 514 Flash Digital Concert 6, more good music. |
| 33 Amos, the game creator demo. | 511 Train Construction Set, great game. |
| 43 Pugs in space, one of the best. | 509 Watership Down, lovely slideshow. |
| 51 Enemies music 3, 16 great tunes. | 507 Sounds of Gnome, brill music by Mahoney. |
| 65 Cryptoburners music, brill, 9 tunes. | 482 Channel 42, great, 35 high res. pictures. |
| 77 Dexion music, 10 tracks, very good. | 484 Garfield Slideshow, all pictures in colour. |
| 78 Holy Grail, very good text adventure. | 478 Kylie Minogue "Made in heaven", 2 disks. |
| 79 The Education of Cool Cougar anim. * | 34 Forgotten Realms, fantasy slideshow. |
| 95 Dexion mega demo, very good, get it. | 44 Trilogy Mega demo, superb demo, 2 disks. |
| 101 The famous Gymnast demo excellent * | 45 Kefrens Mega demo 8, Fantastic, 2 disks. |
| 318 Dope the intro maker, make your own. | 53 Nasa pictures, space picture slideshow. |
| 323 Digital concert 3, 12 mins of music. | 83 Miller Lite demo, "He ain't heavy" the Hollies. |
| 333 Digital concert 4, more great music. | 104 Yellow Mix, great acid type music. |
| 341 Popeye meets the Beachboys, funny. | 115 Rebellion Music by 4 Matt, 5 great tunes. |
| 363 Golden fleece, brill text adventure. | 121 Mental Hangover by Scoopex, great demo. |
| 376 Reflections 1, half hour of music. | 132 Dragons Mega demo, a very good disk. |
| 378 Reflections 2, over 40 mins of music. | 144 Music Maestro 6, Jukebox demo, 9 tunes. |
| 394 Stamp collector, animation. | 518 Rave Demo, way out music, crazy graphics. |
| 395 D-Mob music 2, 10 tracks, 26 mins long. | FRED FISH disks now stocked from 161 up to 360. |
| 416 The Definitive Jarre show, music. | FISH catalogue disk now available. |
| 440 Elite Major, music, ten tunes, good. | |
| 441 Pseudo cop game, horizontal shoot em up. | |

NO MEMBERSHIP FEES, FIRST CLASS RETURN OF POST SAME DAY
SERVICE, TOP QUALITY DISKS, AND VERIFIED. VIRUS FREE
NO HIDDEN EXTRAS THE PRICE YOU SEE IS THE PRICE YOU PAY.

**BLITTERCHIPS. "CLIFFE HOUSE", PRIMROSE STREET,
KEIGHLEY, WEST YORKSHIRE. BD21 4NN**

TEL/FAX (0535) 667469 10am-7pm.
MON-FRIDAY. 9am-4pm SAT.

OFFER APPLIES TO U.K. ONLY. SORRY MAIL ORDER ONLY.
PLEASE NOTE DISKS MARKED * REQUIRE 1 MEG OF MEMORY

**G
U
A
R
A
N
T
E
E
D**

Amiga Printers Inside and Out

The printer is one of the most rewarding and irritating add-ons that any computer can have. Andy Eskelson reviews a book that has some dubious minuses and a useful plus or two

This is a book from the Abacus/Data Becker range, and is by Ralf Ockenfelds, and is number 15 in the sequence of books that Abacus has published.

The book is aimed at the non-technical person, and explains many of the terms and functions common to many printers. It does this in a clear and easy to follow manner and the inclusion of the companion disk makes it possible to try out the files on your printer as you read through the book.

There are 255 pages in the book divided up into ten chapters Appendix A & B and an index. The book also covers WB 2.0 in respect to setting up printers.

In general, the book is well laid out and of a very high quality, but there are quite a few oddities that came to light when I was reading through it.

One of the first things I do when examining a book for the first time is have a quick look at the index, and the appendices, this gives me a good idea of the topics covered and the amount of work that has been put into the book.

Appendix A in 'Amiga Printers' contains some connection diagrams, for the parallel port and the serial port. There is a very well known feature on the Amiga's parallel port and that is the 5 volt output on pin 14. Some printers put this pin to ground and this can cause some damage to the Amiga's interface circuits. The diagram shows this pin connected through to the printer. The normal function of pin 14 is to enable the auto LF function of the printer.

If the printer implements this function then it will never work, because the 5 volt output will hold this pin in the inactive state. Normally Amiga printer leads do not use this pin at all!

The diagrams for the serial connections are for two types of handshaking (a method that prevents loss of data) the diagram on page 223 indicates that it is for hardware handshake, and the diagram on page 224 is for software handshake. This is completely wrong. The titles for the diagrams have been transposed and the software handshake is really the hardware handshake and vice versa. This error is carried into the index as well! Not very encouraging for the observant reader. . .

I was impressed with the description of the preferences system, as it very simply

explains the functions of the often confusing graphics screen, as I was with the escape code description and the numerous examples. They are very sensibly laid out with the example following the command in question, and with all the options presented very clearly.

The reader will find many useful tips hidden in the text and they are often reproduced on the supplied disk ready for use!

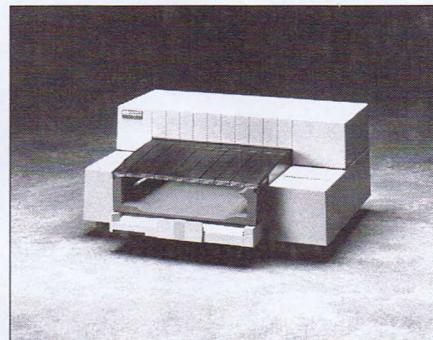
There are a few more confusing points in the book, page 129 talks about the speed of the printhead being approximately 1/100th of a second, when it really means the pins in the printhead. On page 143 the statement is made:

'The character sets located in the printer obviously can be accessed by the printer but cannot be changed or overwritten. However, the characters that you design are placed in the printer ROM (read only memory) and can be changed, erased or overwritten' and it goes on to say that the data in the printer ROM is lost when power is returned.

"If the printer implements this function then it will never work, because the 5 volt output will hold this pin in the inactive state."

It is fairly obvious that what is meant is RAM not ROM, but this book is supposed to be simple and non-technical, so I would have expected the proof-reading to have been done a little more carefully.

Mention is made of a PD program called PRTDRGGen, and there is a copy of this on the disk. This is a problem that enables the user to create or change printer drivers. I have used this program to create drivers, and it really is a VERY VERY nice program, but it is complex. The book implies that you can edit printer drivers with PRTDRVGen. Well, that is true in one sense, but you have to be aware that PRTDRVGen only works with WB 1.2 drivers, and it can get very confused if you try to edit a 1.3 driver. PRTDRVGen drivers WILL work with 1.3 and 2.0 workbenches, but you will not have access to the clever



smoothing routines offered by 1.3 and above drivers.

There is also one very important aspect of Amiga printers that seems to be completely missing, and that is information on ANSI X3.64. This is the STANDARD that the Amiga uses when talking to a printer via a printer driver. This could have been included as another line in the command listings/examples and it really does need to be explained to the user what its effect on printers is.

There are quite a number of pages devoted to TextPro and BeckerText, describing how to configure them to your printer. Not the most interesting examples, but users of these two products will appreciate this inclusion. However, this does indicate the obvious German origin of the book.

This book is NOT one of the best that Abacus has produced. It gets a bit sloppy in certain areas, and it fails in places when looking through the eyes of a beginner. If you are happy with the manual of your printer and you can find your way around it without any real problems, then it probably is not worth getting this book.

On the plus side, there is a LOT of very well set out information, more importantly with lots of practical examples of their use, and the average Amiga user will find this book very much better than a printer manual and would be glad to see it on the bookshelf.

A.E.

**Amiga Printers Inside and Out
Published by Abacus
ISBN 1-55755-087-5
Price £29.95**

THIRD COAST TECHNOLOGIES



Unit 8, Bradley Hall Trading Estate,
Standish, Wigan, Lancashire,
WN6 0XQ
Tel: (0257) 472444 Fax: (0257) 426577

Hard Drives For The A500 & A2000

Xetec A500

- Xetec hard drives offer the ultimate in terms of performance for the Amiga A500
- Faster than any other competitor
- Transfer rates of up to 800K/S
- Supports tape backup & networking under SCSI

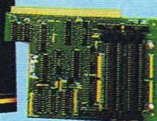
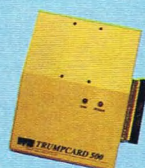
- Support of up to 8Mbytes of auto-configuring ram
- Compact host adapter with 1 metre connection cable
- Comes complete with 40 management utilities & manual

Xetec A500 Hard Drive & Ram Pricing

Xetec 50MB 25 Milli Head Park	£599.99	Xetec Ram	£99.99
Xetec 65MB 25 Milli Head Park	£649.99	Xetec 1.5 MB	£229.99
Xetec 85MB 25 Milli Head Park	£699.99	Xetec 2MB	£299.99
Xetec 106MB 15 Milli Head Park	£799.99	Xetec 4MB	£399.99
		Xetec 8MB	£799.99

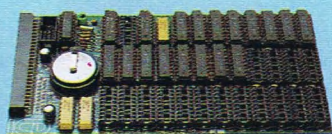
IVS Trumpcard

- Supports all embedded hard drives
- Supports up to 4Mbytes of fast ram
- 2-3 times faster than the A590
- Autoboot roms as standard, uses fastfile
- Compact design clips into side of Amiga A500
- Memory expandable in 512K, 1MB, 2MB steps
- Unique design allows controller & drive to be used with an Amiga 2000 should you ever upgrade



32MB Trumpcard 25 Milli Auto Park A500	£399.99	Trumpcard Kit	£199.99
50 MB Trumpcard 25 Milli Auto Park A500	£449.99	Meta 4 -2MB	£249.99
106 MB Trumpcard 25 Milli Auto Park A500	£699.99	Meta 4 -4MB	£349.99

Ram Expansions



ICD AdRAM for the A500 offers memory expansion from 512K to 1MB then by adding 4 chips it expands to 1.5MB etc. The board comes supplied with comprehensive manual and clock. It takes only minutes to install & requires no soldering. Available in any configuration. Plugs in A501 expansion slot.

ICD AdRAM A500

AdRAM 540 unpopulated	£79.99	AdRAM 540 with 2MB	£174.99
AdRAM 540 with 1/2MB	£99.99	AdRAM 540 with 4MB	£244.99
AdRAM 540 with 1MB	£134.99	AdRAM 540 with 6MB	£484.99
AdRAM 540 with 1.5MB	£154.99		

CP10 Pal Encoder



Price £149.99
Broadcast quality Pal encoding on the Amiga, PC and Atari allows you to get on your recording what you see on the screen without loss of quality. Supports S-VHS and also RGB & Audio in on Scart. Audio, Video and Y/c out. Supplied with comprehensive manual & PSU.

DG40 Automatic Colour Splitter



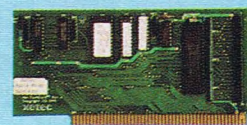
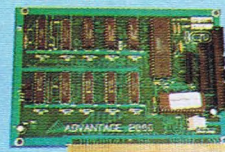
Price £149.99
Allows images to be digitised in full colour from camera or recorder. Offers Pal in and also S-VHS in full brightness, contrast and colour controls. Fully Automatic without the need for manual switching between Red, Green and Blue. Fully compatible with all Amiga digitiser, supplied with comprehensive manual & PSU.



Faster Than any other Competitor "Amiga Computing"

ICD ADV 2000 Hard Drives

Advantage 2000 SCSI performance hard drive controller. Supports transfer rate of up to 900K/S. Fully autobooting supporting all embedded SCSI drives & SCSI/ST506 controllers. The ADV controller also supports optical drives, tape streamers & removable media drives. Cache buffering & 20 nanosecond GAL logic make this the fastest controller commercially available for the Amiga 2000 series. Programmable memory cache buffering is also available. ADV will support a drive in the landing bay or on the side of the card.



ADV 2000 Controller £129.99

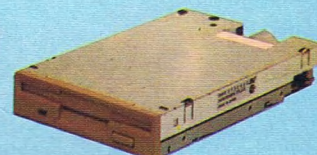
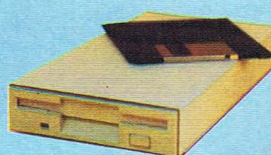
Xetec minicard £99.99

ICD ADV 2000 Hard Drive Pricing

22MB 25M/S auto head park & lock	£349.99	32MB 25M/S auto head park & lock	£399.99
50MB 25M/S auto head park & lock	£399.99	65MB 25M/S auto head park & lock	£449.99
85MB 25M/S auto head park & lock	£499.99	106MB 15M/S auto head park & lock	£649.99
330MB 15M/S auto head park & lock	£1999.99	ST506 controller (MFM & RLL)	£99.99

Amiga Floppy Drives

Internal floppy drive requires no case modification
external 84 track slimline drive with cable & switch



External Floppy £69.99

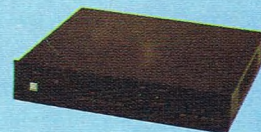
Internal Floppy £59.99

Graphics

Pro Genlock

£249.99

Pro-Genlocks offering video in & out, RGB & PAL out. Built in fader. External colour and contrast controls. Supplied with manual and features that leave the Rendale standing.



GST Gold Genlock

£499.99

Pro-Genlock with built in PSU, built in RGB splitter. Video in & out also RGB & PAL out. Built in key inverter. Allows digitised results to be stored and overlayed onto any VHS recorder. Title and animate any video.

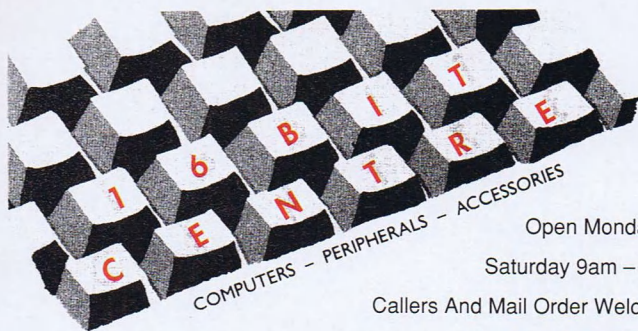


ICD Adspeed



- 14MHz replacement processor
- 7MHz fallback software selectable
- On-board RAM cache
- No soldering required

Only £195



Open Monday to
Saturday 9am - 6pm
Callers And Mail Order Welcome
Spacious Free Parking

A500 XMAS PACK

Amiga A500, Mouse, Modulator, Manuals, Basic, Workbench, Tutorial, Joystick, Disk Box, 10 Blank Disks, Dust Cover, Dpaint II, PLUS 14 GREAT GAMES.

Shadow Of The Beast II, Back To The Future II, Nightbreed, Days Of Thunder, Star Wars, Toobin, Barbarian II, Licence to Kill-James Bond Game, Running Man - With Schwarzenegger. APB, Xybots, Dragon Spirit, Hard Drivin, Voyager

STILL ONLY. . £399.00

1 Meg version £439.00

HARDWARE

COMMODORE A590 20MB Hard Disk, Unpopulated	£285.00
COMMODORE A590 20MB Hard Disk + 2m RAM	£339.00
PHILIPS 8833 MKII Stereo Monitor	£229.00
RENDALE 8802 Genlock, A500/B2000	£185.00
SUPRA 2400 External/Internal Modem	£119.00
SOPHUS 85 Professional Stereo Sampler	£79.00
KCS POWERBOARD, PC Emulation (A500)	£290.00
TARGET MIDI INTERFACE, In/Through 3xOut	£29.00
COMMODORE PC AT BRIDGEBOARD (B2000/1500)	£559.00

PRINTERS

STAR LC-10 MONO PRINTER, inc Lead	£155.00
STAR LC-200 COLOUR PRINTER, inc. Lead	£204.00
STAR LC-24/200 MONO PRINTER inc. Lead	£249.00
STAR LC-24 /200 COLOUR PRINTER inc Lead	£297.00
CITIZEN SWIFT 24 MONO, inc. Lead	£279.00
CITIZEN SWIFT 24 COLOUR, inc. Lead	£309.00
CITIZEN SWIFT 124D, 24 PIN MONO, inc lead	£239.00
CITIZEN 1200+, 9 PIN MONO, inc. Lead	£139.00

AMIGA A1500 UPGRADE

Upgrade your A500 for a new A1500
For ONLY £799.00 (plus your A500)
PLEASE CALL FOR DETAILS

DISC DRIVES

Q-TEC Disc Drive, on/off, Through Port	£74.95
FERROTEC Drive, on/off, Through Port	£57.50

PHILIPS 8833 MKII MONITOR

Including Free Lead
ONLY £229.00

NAKSHA UPGRADE MOUSE

Mat & Holder
ONLY £28.50

STAR LC-10 MONO PRINTER

Including Free Lead
ONLY £155.00

STAR LC-200 COLOUR PRINTER

Including Free Lead
ONLY £204.00

SOFTWARE & DISKS

SONY DD/DS Disk, box of ten inc labels	£9.49
PAGESETTER V2, DTP Package	£47.00
PEN PAL, Excellent Word Processor	£69.00
THE WORKS PLATINUM, Integrated package	£77.00
PROFESSIONAL PAGE 1.3 DTP Package	£139.00
AMOS & EXTRAS DISK	£32.00
SHADOW OF THE BEAST II, (no shirt)	£15.00
BACK TO THE FUTURE II	£9.95
NIGHTBREED	£9.95
DIGIVIEW GOLD V4	£95.00
SOUND EXPRESS, Stereo sampler & software	£32.00
LATTICE C v5.1	£145.00
X-CAD DESIGNER (1 Meg)	£69.00
WALT DISNEY ANIMATION STUDIO	£69.00
QUARTET Midi Package	£32.00
PRO-WRITE V3.1	£85.00
TV TEXT PROFESSIONAL	£79.00
SCULPT ANIMATE 4D	£225.00
PAGESTREAM V2, Excellent DTP Package	£109.00
CROSS-DOS, Multi-format file transfer	£23.00
PANASONIC VIDEO CAMERA. Ideal for DigiView	£149.00
X-COPY PROFESSIONAL inc. Hardware	£34.00
FRAMEGRABBER (PAL) Realtime colour grabber	£429.00
TRACKBALL with ball and button lock	£30.00

AMIGA MEMORY

B2000/1500 Microbotics 8Up Board + 2Meg Ram	£199.00
Extra 2Meg Ram for above board	£75.00
A500 Base Board, Populated to 4Meg	£249.00
A500 TARGET 512K Ram, without clock	£33.00
A500 TARGET 512K Ram, with clock	£36.00

All A500 boards fit into the A501 slot.

Include BATTERY BACKED CLOCK

Fully Compatible with Fat and Fatter Agnus

AMIGA A1500

The NEW A1500 inc. Stereo Monitor. Twin Drive. Dpaint3, The Works Platinum +4 Games, ONLY £1049.00

AMIGA PACKS

SCREEN GEMS PACK. inc Shadow/Beast II, Back/Future II, Nightbreed, Days of Thunder, DpaintII	£359.00
STARTER PACK inc 5 commercial games plus Autofire Joystick	£359.00
1 MEG SPECIAL inc Extra 512K RAM, Photon Paint II, Spritz Paint	£399.00
CLASS OF THE 90's FIRST STEPS, inc Extra 512K, pro-write, info file, Dpaint II +Dprint II etc	£525.00
CLASS OF THE 90's inc extra 512K Publishers choice, MaxiPlan, BBC Emulator, Midi Int etc	£525.00

All Amiga A500's supplied with Mouse, Modulator, Manuals, Workbench, Basic + Tutorial

HOW TO ORDER:

Either call our number below with your credit card details, or send a cheque/PO or credit card number and expiry date to our address. Make cheques payable to
THE 16 BIT CENTRE
Prices subject to change without notification.

All Prices include VAT and Courier Service.

16 BIT CENTRE

Units 15-17

Lancashire Fittings Science Village
Claro Road, Harrogate HG1 4AF

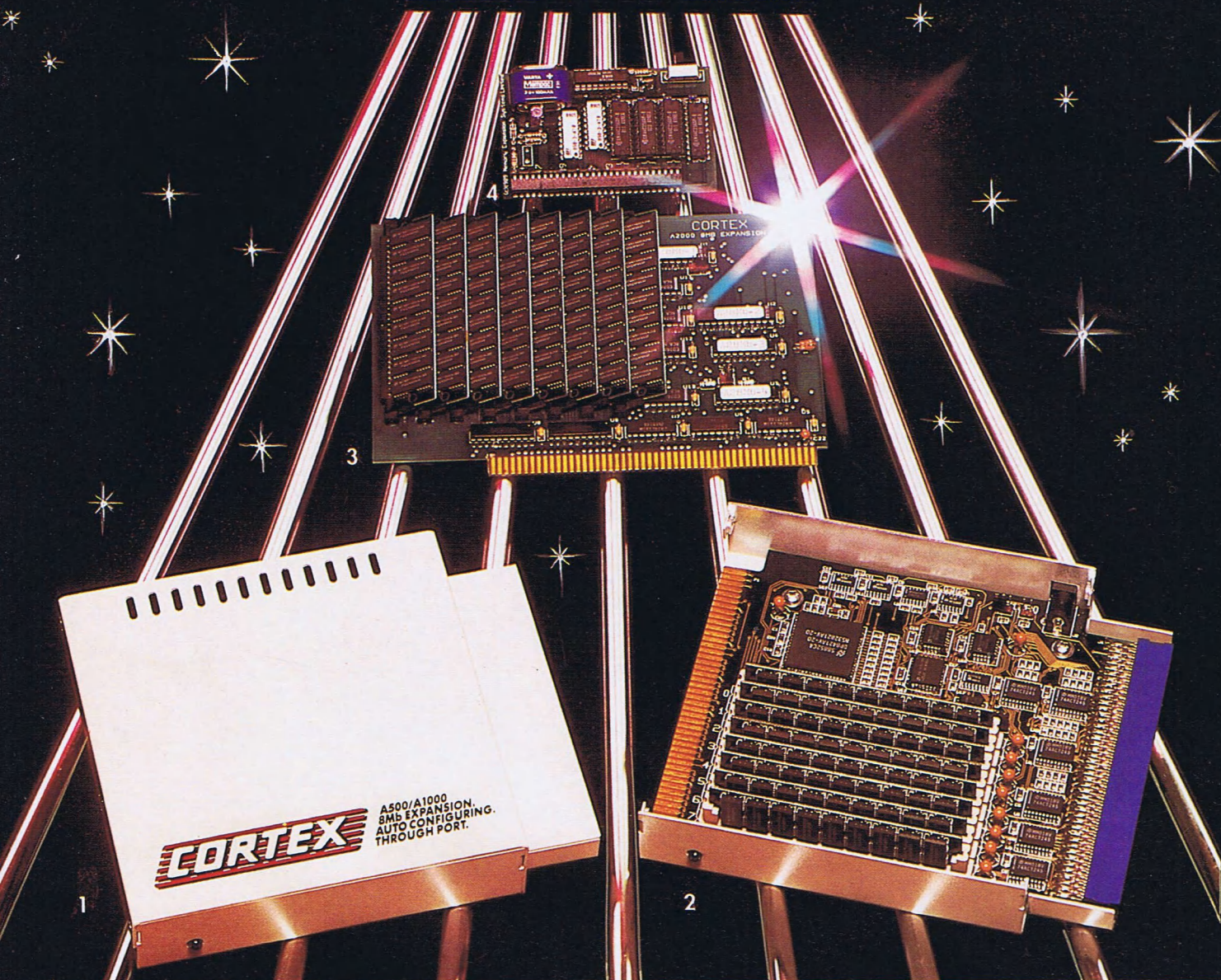
Tel (0423) 531822/526322

EXTENDED WARRANTY AND MAINTENANCE CONTRACTS AVAILABLE ON ALL ITEMS. PLEASE CALL FOR FURTHER DETAILS.



**A LONG TIME AGO IN A GALAXY FAR FAR AWAY, IT WAS DECIDED
THAT THE WAY TO EXPAND AN AMIGA A500 BEYOND ONE MEGABYTE WAS TO
OPEN THE HOST MACHINE AND FIX THE EXPANSION MEMORY INSIDE, THUS
INVALIDATING THE WARRANTY, OVERLOADING THE POWER SUPPLY AND OFTEN
CAUSING DISASTEROUS HARDWARE INCOMPATABILITY PROBLEMS**

..... THEN CAME



..... the **CORTEX** rebellion!

1. A500/A1000 8Mb Expansion (2, 4, or 8Mb). Fully implemented autoconfigure. Fully operational through port for compatibility with other autoconfiguring hardware (e.g. CBM A590). Complete with its own power supply (U.K., U.S. or Euro). **£299** (2Mb FITTED).

2. As above, but with the cover removed.

3. A2000/A2500/B2000 8Mb Expansion (2, 4, 6 or 8Mb). Fully implemented autoconfigure. Uses 1M x 8 bit or 1M x 9 bit SIMM's. **£209** (2Mb FITTED).

4. A500 1 1/2 Mb Expansion. The essential A500 upgrade. A high quality A501 equivalent using low-power 1Mbit DRAM's. The unit has a "enable/disable" switch and is available with or without NiCad battery-backed clock/calendar module. (Clock version £37) **£32**

5. External 3.5" Floppy Drive (not pictured). High-quality silent mechanism. Extra drive port and "enable/disable" switch. **£68**
Hard disks. Systems available for all Amiga variants call for details and pricing.

CHIP UPGRADES

"Fatter Agnus" chip (8372A) for A500/A2000. Enables up to 1Mb of Chip RAM. Fitting requires some skill and will invalidate your warranty. **£60**

1.3 Kickstart ROM. Upgrade for A500/A2000 **£33**

A590 Upgrade chips: 1/2Mb **£25** 1Mb **£49** 2Mb **£95**

SIMM's. All types available. Call for pricing
A3000 4 Mbit Static Column Dram call for pricing.

All prices include VAT and postage & packaging. Prices may be subject to change without notice. All products carry a 12 month guarantee. Dealer enquiries are welcome.

CORTEX products are marketed in the U.K. by
Memory Expansion Systems Ltd. Britannia Buildings,
46 Fenwick Street, Liverpool L2 7NB. Tel. (051) 236 0480.
Fax: (051) 227 2482. Make cheques payable to M.E.S. Ltd.



PICTURE GET IN

We are delighted to offer readers of Amiga User International this special New Year offer.

At only £239.00 this is your opportunity to buy this superb Phillips CM 8833/11 14-inch multipurpose CGA colour, stereo monitor.

The perfect companion for your Amiga - this stylishly designed, dark glass screen state-of-the-art monitor will add the final touch to your game playing or business applications.

The special flat screen design gives pin sharp definition to all your graphics and for serious business users there is a text switch option to enhance your applications programs. For matchless



reality it will even deliver stereo sound, and there is a headphone socket to guarantee peace at home!

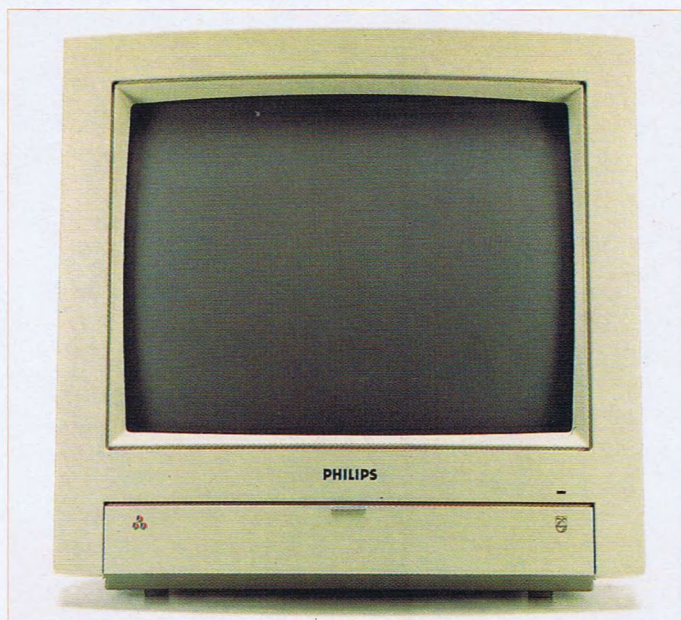
Ever needed a spare T.V.? This features-packed monitor includes a Composite Video Signal Connector which is a complicated way of saying that you just plug it into your VCR and you have an extra T.V.!

Ideal for your Amiga it can also be used as a CGA monitor with IBM PC compatible computers.

Our great value price INCLUDES delivery to any address in the U.K. Mainland, VAT at the current rate and a mains power lead.

Just order, plug in and enter the wonderful, stereophonic, colourful world of Philips.

For the best value around go no further than this sensational value for money reader offer from AUI.



TO: MONITOR OFFER, THE DIRECTORY,
116-120 Goswell Road, London, EC1V 7QD

Please send me Philips CM8833/11 colour monitor at the special price of £239.00 including VAT and delivery.

Please make cheques payable to M.C.P.C. Ltd., or debit my Visa ☐ or Access ☐ Card No. (indicate the account by marking the appropriate box):

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Signature Expiry Date.....

Name

Address

Please allow 28 days for delivery

Offer closes 28th February 1991

PERSONAL FINANCE MANAGER

In some respects it is true to say that the more money you have then the more troubles that money will bring you. I myself would like to find out one day if that statement is really true, but will probably never know.

Still, what is more true to say is that the less money you have then the more you will have to keep it in check (no pun intended!). The Chancellor of the Exchequer has the same problems with the nation's money... albeit in larger amounts... as do all of us. He has to allow certain outgoings to cover the costs of each service. He has also to share out the income so that there is enough in each pot to last the full fiscal year. We all know that the Chancellor has, every April, worked out the budgets for the year and so all of us should organize our own money in the same way. We also know that about half-way through the year, he finds all his calculations are wrong - and so probably do we!

This is where PFM comes in very handy, it can save you its purchase price in no time at all. Used correctly PFM can control what money you have, by creating your own budgets, then monitoring their performance. The times when your bank account surprisingly went overdrawn at the end of the month will be a thing of the past, you'll be able to manage your income and outgoings in a professional manner.

Until PFM came along there wasn't what I would call a "professional" program to handle my personal finances in the man-

ner I liked. For my own use, until now, I have used a spreadsheet, to show me all the ins and outs and balances. I had to draw the sheet up myself, basic formulae thrown in, and the more you want the sheet to show, then the formulae became complex and more cumbersome and slowed down the calculations. Not so with PFM!

"The times when your bank account surprisingly went overdrawn at the end of the month will be a thing of the past"

Straight away it is easy to see the advantages of using PFM. There is a very friendly Intuition screen with pull-down menus that allow entering new transactions a simple matter of just filling in a form. PFM does the rest. Opening up a new standing order is just as easy, PFM will ask you the details and will do the rest.

What you see is a statement, very much the same kind as you receive from your lovely-jubbly Bank Manager. All transactions are listed with dates, descriptions and amounts, either credits or debits. Then when it is time to check your account against the bank's statement PFM can perform what is known as rec-

onciliation, this is a process that describes the juggling of recent transactions until a balance agrees with your statement. You know the sort of thing, when a recent cheque has not yet cleared through the system, but you have already taken account of it. PFM will be able to work out just which cheques these are.

I said professional and I mean professional. You have five different types of window display at your disposal. There is the statement window, standing orders, a balance plot, a budget comparison graph and an entry distribution chart.

Taking these one by one the first window, as I said before, is very much the same as you are used to seeing from the bank, up to 200 transactions on a roll over basis can be shown. There is one additional feature however, you can code each transaction i.e. for outgoings relating to the house, car or food you can give them a distribution code "H", "C" or "F" for instance.

All standing orders and their frequency may be listed, up to 50 different orders can be managed per account. The balance plot window gives you a graphical display that will let you see easily, when and by how much, your running balance will be over a given period.

The entry distribution window is yet another graph, this time you can see it as a pie chart. Up to 100 coded entries, however, only 10 at a time may be viewed as a pie chart. Finally a budget comparison graph lets you see if, and by how much, you are overspending against your budget assessments.

Of course no self-respecting Amiga owner who is concerned enough about his finances is without a printer. PFM supports any bog-standard 80 column printer connected to the parallel port. You cannot get a printout of the graphs normally, which is a bit of a shame, but should not detract from the overall product.

Well, by now if you aren't completely convinced that PFM can work wonders with your money, then maybe you should be the next Chancellor. With the aid of PFM you probably will be.

B.C.

Price: £29.95

**Contact: Microdeal.
PO Box 68
St Austell
Cornwall
PL25 4YB**

Desk File Update Report Options					
Account DF8:Example.HNY					
Date	Description	Debit	Credit	Code	Balance
10/01/90	Mortgage	437.58		H	4151.74
11/01/90	Petrol	16.34		T	4135.40
12/01/90	Clothes	68.98		M	4066.42
16/01/90	Shopping	43.86		C	4022.56
19/01/90	Credit Card	225.63		X	3796.93
19/01/90	Petrol	14.56		T	3782.37
22/01/90	Insurance	24.22		M	3758.15
25/01/90	Car Tax	100.00		T	3658.15
25/01/90	Shopping	43.99		C	3614.16
26/01/90	Petrol	21.87		T	3592.29
30/01/90	Pay		1000.00	P	4592.29
01/02/90	Shopping	41.84		C	4550.45
02/02/90	Savings	200.00		S	4350.45
04/02/90	Garden Centre	54.33		H	4296.12
09/02/90	Shopping	55.66		C	4240.46

C++ THE ONCE AND FUTURE LANGUAGE

PART ONE

Self-confessed C addict John Kennedy looks at how "the best programming language in the whole wide world" has been improved in the first of this two part series

With good reason, C has become the main programming language for the Amiga. The ease at which the Amiga's library routines can be accessed and the amount of control over the custom hardware are just two of the features beloved by C programmers. Take into account that a typical C compiler can produce some of the smallest, fastest code this side of an assembler, and languages such as Pascal and BASIC start to look very silly.

Bearing in mind that C evolved from nothing more than a high level assembler for a relatively obscure micro-processor, it is nothing short of amazing that it still exists, never mind amassed the huge following it has.

However, there are always those stalwarts determined to find fault with C. "There is no proper type checking" they say. "What about object orientated programming then? It's not a language for the future."

"The constructors and destructors of the screen class will automatically open and shut libraries and create structures for you. Bliss!"

It is true that C has - shall we say - rather flexible type checking. For example, just because you define a function to deal with Ascii characters, doesn't necessarily mean you can't use it with integers. Most C compilers work on the premise that the programmer is always right, no matter

how odd his or her requests might be.

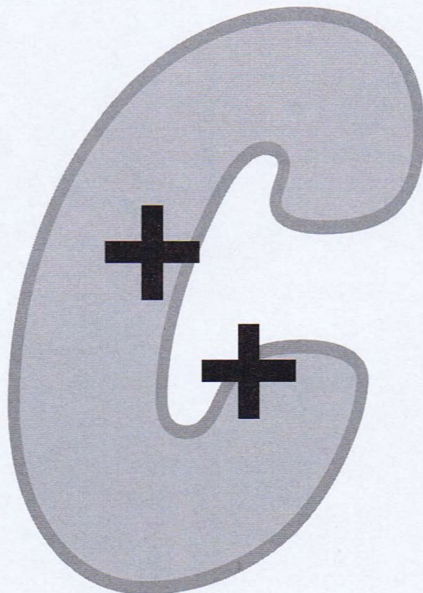
This is a great approach if the programmer always is correct, but for those of us who occasionally make mistakes, it's always nice to be told (in the nicest possible way of course) that we've botched it.

This unique freedom offered by C can become exceptionally dangerous in the large software engineering projects undertaken in the 90's. What is needed is a more 'object orientated', 'modular' or 'black box' system of programming.

A 'black box' is a code module which performs a function on given set of data. It

Furthermore, as each code module only communicates with the others via its pre-defined input and output ports, a module can be completely re-written as long as the port specification is not changed.

For example, a sort module may use a list of names as an input, and an alphabetically sorted list of names as an output. How the sorting is carried out is irrelevant to the rest of the program. Imagine though that after a program has been used several times, it is decided that it can be accelerated by making use of a different sorting algorithm. All the programmer must then do is place the new algorithm into the form of a code module. It can then be



(usually) has an input and it (usually) has an output. The Object Orientated Programming (OOPS) philosophy demands that such code modules are isolated as much as possible, in so far as one module is physically restrained from accessing data in another module. Thus the chances of data accidentally being corrupted are considerably reduced.

"Learning C needn't be a difficult task, especially on the Amiga"

swapped with the original module.

As long as the input and output structure is maintained, no other element of the program has to be changed.

However, those niggles from the whingeing anti-C faction wouldn't go away. It would have been possible to update C piece by piece until it had answered all the criticisms, but with even differences in the so-called standards UNIX C and ANSI C, such a step would have taken years and produced thousands of different versions. Result: Chaos, with no-one quite sure which version to use. Look at the available versions of BASIC if you want to see what could have happened to C. The solution was to jump straight to C++, a step taken by Bjarne Stroustrup at Bell Laboratories.

C++ builds on the C language, straightening out a few minor points and adding

some major new features. If it means anything to you, you could say that C++ is to C as Modula-2 is to Pascal. As a result, as well as having all that lovely control over the system, you also have access to a complete Object Orientated Programming system.

(As an aside, the name C++ is a pun which only C programmers will recognise. It's not wildly side-splitting, so don't learn C simply to understand it.)

C++ For New Users

As C++ is a superset of C, and so any newcomers will have to be able to program (at least a little) in C - preferably a fully ANSI compatible version.

The mechanics of C programming are largely unchanged. Variables, pointers, functions, structures - they are all present in C++ so you'll need to be fairly confident about using them.

Learning C needn't be a difficult task, especially on the Amiga. There are plenty of excellent books on C programming (and plenty of not so excellent books too). There is even one in the public domain available on disk!

When programming the Amiga in C, there are two very different tasks in hand:

1. Learning to program in C, and
2. Learning to program the Amiga.

In my opinion, learning to program the Amiga is by far the more difficult task of the two. I learnt the basics of C programming on a VAX mainframe in a matter of days. It took a long time before I had a C program running on my Amiga.

If you are planning on learning C++, I recommend you concentrate on the primary task of C. When you graduate to using C++, it becomes dramatically easier to make use of the Amiga's libraries and

so some of your Amiga-specific learning will have been wasted.

Good and Bad points

Using C++ on the Amiga can be almost an enjoyable experience. By defining various intuition features as classes, you can save yourself an incredible amount of effort.

For example, Lattice C++ comes with a 'class library' which defines Screens and Windows as objects. This means opening a screen is now just a matter of declaring a variable of the correct type. The constructors and destructors of the screen class will automatically

"A 'black box' is a code module which performs a function on given set of data. It (usually) has an input and it (usually) has an output"

are slowed down tremendously. The obvious solution is to pre-compile all your intuition based functions, and link them in at the last moment.

Once you build yourself up a selection of library functions, code generation takes hours rather than days.

C++ on the Amiga

One of the most respected C compilers available on the Amiga comes from Lattice. Although pricey, it's just about the best you can get and comes with some superb documentation.

No doubt you'll be overjoyed to hear that Lattice also produce a C++ compiler. Again it's pricey but it's the best. In fact, it's the only Amiga C++ compiler I've come across! Again, documentation is of a high standard and even includes an independently written textbook called "An Introduction to Object Orientated Programming and C++", which wouldn't be out of place on a university reading list.

Perhaps surprisingly, one of the major advantages of C++ is the ability to make listings more readable.

Next month we'll take a look at the main differences between C and C++ that make this possible.

J.K.

"Most C compilers work on the premise that the programmer is always right, no matter how odd his or her requests might be"

open and shut libraries and create structures for you. Bliss!

On the minus side, C++ takes extra time to compile. What actually happens is a pre-processing of the C++ source to convert it to a C program. Then the C program is compiled in the usual way.

When using the Intuition libraries, things

Professional Pages

Mark Smiddy looks at Hewlett Packard's new front runner in a long line of professional inkjet printers - the DeskJet 500

Enter the new generation of inkjets. These new machines do not need special ink, print on normal sheet (photocopier) paper and do not cost the earth. One of the most popular of these has been Hewlett Packard's much vaunted Deskjet range - and the most recent addition to the range is the Deskjet 500.

Unlike many other designs paper is automatically fed from a bin at the front and delivered back to the front after printing. With the DeskJet series, an auto-sheet feeder (for around 50 sheets) is fitted as standard. This can be a drawback, because there is no provision to load traditional fanfold - which is cheaper and slightly wider too.

The final test for any printer is how good the output is. According to the specifications, the output resolution is 300 x 300 dots per inch (DPI) - comparable to Apple's Laserwriter II or HP's own LaserJet. The practical resolution is difficult to judge but the sheer output quality is staggering. It may not be laser quality, but very few people will be able to tell the difference.

The machine features a wide range of fonts for word processing, although only

not be Victor Kyam but I was so impressed - I bought the machine. You cannot get a better recommendation than a reviewer who is prepared to put his money where his pen is.

HP DeskJet 500

Points for: Excellent output; wide range of fonts and styles; very easy to use; limited emulation of HP LaserJet II; replacement print cartridges; prints on envelopes.

Drawbacks: Ink can smudge when printing in NLQ; Epson emulation extra; font and emulation cartridges are expensive, external PSU.

Interface: Parallel or Serial

Fonts:

Courier - 10, 16.67, 20. Landscape printing facility

CG Times - Proportional Letter Gothic - 12

RRP: £688.85+VAT

Test Drive

Printer manufacturers are well known for being bullish over the claims they make for the speed of their machines. Not surprisingly, Hewlett Packard suffer from the same symptoms. Most manufacturers quote "burst" figures - rather than the achievable, IN-USE figure. If HP quoted realistic values, people would think the machines were slow.

These tests were created using nothing more sophisticated than a word processor (Arnor's excellent Protext 5) and a stopwatch. The actual test was as follows. Four pages of random text were created without any special style or formatting. Then timings were

taken and averaged from the time the machine started the print job to when the last sheet was delivered. A second test - for throughput - timed how fast an operator could repeatedly load and feed a complete page from the paper tray to the output tray.

Courier (10 CPI)

2 Minutes 24 Seconds

110 CPS actual (240 CPS claimed)

Up to 3 Pages per minute.

Approximately 1.6 APPPM

Times (proportional)

3 Minutes 2 Seconds, 88 CPS

Approximately 1.3 APPPM

Courier NLQ (10 CPI)

3 Minutes 34 Seconds

75 CPS actual (120 claimed)

Approximately 1.1 APPPM

Page throughput: Load and eject pages without printing 4 APPM

Compared to claimed values, these results may seem a little startling - the draft speed was less than half that claimed - but are they? If you already have a printer you might like to try these tests yourself - but be prepared for a shock! Over the years I have benchmarked many printers from simple thermal plotters to lasers. To date, not one of the machines tested has come anywhere near what is claimed. This leaves the potential buyer somewhere between the devil and the deep blue advertising claim. You can use the burst figures as a rough guide, but never expect to be able to achieve those figures.

Key:

APPPM - Average Printed Pages Per Minute

APPM - Average Pages Per Minute

CPI - Characters Per Inch

CPS - Pages Per Second

Win A DeskJet!

By special arrangement with a major supplier, AUI's sister publication, The Directory has a Deskjet machine ready to give away. This forerunner to the Deskjet 500 lacks some of the fancier features of the later machine, but still offers remarkable near laser quality output. To get one all you have to do is buy a copy of The Directory, enter the competition, and win!

If you just cannot wait to get your hands on one, Adams World (who supplied the review machine) have a limited number left - at "a very competitive price." Contact them for more details.

M.S.

Contact:

Adams World

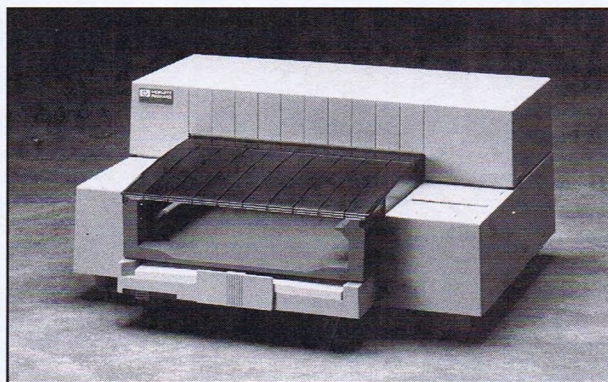
779 High Road

North Finchley

London

N12 8JY

Tel: (081) 446 2241



Courier can be selected from the control panel. Hewlett Packard claim this is because such features are usually under software control anyway. Perhaps they should look at the Star LC-10, which allows the user to select one of three internal fonts and prevent normal software overrides. This, if anything is the only fault with the machine since it shows too much of its heritage.

Is the Deskjet 500 just a pretender to the crown or can it deliver Near Laser Quality promised by the advertising blurb? I may

START COMPUTER SYSTEMS

0
9
1
5
6
4
1
4
0
0

**FREE PD DISK
with orders
over
10 PD disks**

**RING OUR
CREDIT CARD
HOTLINE
on
091 564 1400***

**INTERNATIONAL
ORDERS WELCOME!**
Postage
Europe + 30p per disk
World + 50p per disk

Order by credit card
or Int. Money order

Greetings to Red Devil/Jez/Silents? Frantic/Goldfire/Robotron/Silents/Tantalus/Toxic/Leroy and all others
Dan/Anarchy (ring me) Mark/Bri/Jo/Windy, and any other lunatics out there in Amigaland also a megagreet
to all the phreaks we met at the Commodore show ... or will meet as this is being written before the show!

THE BEST IN DEMOS AND MUSIC

542 Silents Full Power Music - Really good house remixes
540 PE demo comp 12 - with Crusaders and Silents demos
539 PE demo comp 11 - More great demos and intros
535 GOLDFIRE Megademo - Nice! Thank 4 the greet Nick
532 CRUSADERS - A few tunes ... totally 'Awesome'
531 Captured Imagination - Nice comp by Anarchy
530 Anarchy MF Comp - SUPERB! Nice demo Dan + 4-Mat
529 Technotronic MegaMix - Just like the song! remixed
498 The JCS - Very very very weeeeeeee! Get it!
472 Crusaders demo pack - nice one! with ED-209 game
453 EPIC Preview - Totally and utterly Brilliant! Get it!
445 4-Mat Music - Brill ... like your stuff mat!
444 Start demo pack 5 - includes Hotwired by Crusaders
426 Cronics Neverwhere - Really excellent megademo!
423 Cool Fridge - Nice plasma FX and copper things
314 Mirage Megademo - Big 1 Meg demo, very nice!
254 Tomsoft trip to mars - We like it! nice vector demo
252/253 Budbrain Megademo - Superb demos and music
251 Silents Megademo - Brilliant!
164 Scoopex Mental Hangover - Still as impressive as ever!
136 Fraxion Horror - Totally crap dont buy it!
133 Bacteria - Crusaders Mega music disk - Get it!
499 Slabby Music - Oh wow its amazing!
425 DigiConcert 6 - Megamix of music! Very coool
424 Sound of Silents - Brilliant Brilliant Brilliant. OK?
245 Scoopex Beast music - All the music from the game
242 100 64 Tunes - Wild! SID lives on!!! Get this disk!
227 Jarre Docklanmids - Great music and pics by HCC
223/224/225 Digital concerts 3,4,5 - All very good!
220/221 D-Mob Music 4 - Brilliant house music disk
218 Kefrens Jukebox - Superb music from the kefs
186 DigiConcert 2 - Brilliant music remix
107 Vangelis Demo - Music and art slides 1 Meg

UTILITIES AND ANIMATIONS

496 Visicalc - Powerful PD spreadsheet
495 RIM - a fully relational database systems
494 ARP1.3 - CLI replacement, project
425 Sartrecker - 8 Channel music composer
466/467/468 Countach Clipart - Very good clip art
464 Sozaban C compiler - One of the better ones
460 Iconmania - Brilliant brush>icon tools and icons
459 Jamcracker - Brilliant chip music comp system
434 Amibase - Good custom database with search
377 North C 1.1 - C compiler
378/379/380 C Manual - Brilliant way of learning to program
356 Fish 327 - Messidos PC file reader
354 SID 1.6 - The most cool CLI killer utility for editing and stuff
345/346 VideoApplications - Great fonts and scrolling utils
340 Jazzbench - Workbench clone with more functions
334 Darkstar Utils 2 - If you expect me to list all the utilities on
130 Darkstar Utils 3 - these diskthen forget it! Just buy one
333 Darkstar Utils 4 - and ring Red devil up and ask him! (Dont)
330 PE Utils 5 - More utils by Mr.Devil, all I can say is they are all
331 PE Utils 6 - very well done and contain LOADS of very
332 PE Utils 7 - useful utilities that no home should be without!
N.B. None of these disks contain kirby vacuum cleaners
180 Wordwright - Comprehensive wordprocessor + more utils
123 ST-91 - Rather good instruments diskdone by me!
122 ST-90 - I will do some more soon which will be kool!
118/119/120 Noisetacker and instruments disk(st-01, st-02)
474 Spacechase Anim - Brilliant chase sequence 1Meg
458 StarTrek Fleet Man - Brilliant anim by T Richter 1 Meg
456 Stealthy 2 - Cartoon style anim of a stealthy bomber 1Meg
455 Agatron 15 - 3 Brilliant anims by Tobias all in 512K!
452 Enterprise leaving dock - Quite Amazing! 1Meg
212 StarTrek Anim - Great Tobias anims in 512K
493 Vax Pics - Superb picture created on a Vax computer
484 ColorCycles - Brilliant slideshow of color cycling
461 YabbaDabba - Hey its the Flintstones! Wilmaaaaaah!
454 Nightbreed - Fantastic slideshow of Horror goolys!
158 Agatron 6 - Totally brilliant Ray traced space pics
137/138 Silents Slideshow - Superb Fantasy slides with music

AMIGA PD

99p

Per Disk!

DUST COVERS £2.99
MOUSE MATS £2.50
50 DISK LABELS 99p

10 CAP BOXES 99p
60 CAP K-BINS 99p
50 CAP BOXES £6.95

3.5" DS/DD 135TPI DISKS
With labels and sleeves

10 \$5.50
25 \$12.95
50 \$24.95
100 \$39.95
200 \$77.95

50 disks+50 Cap box
£27.95

MAIL ORDER MADE EASY

1. ALL PD DISKS ARE 99p PER DISK PLEASE ADD 60p POST AND PACKING TO YOUR TOTAL ORDER VALUE
2. THEN JUST SEND US A CHEQUE, POSTAL ORDER OR INTERNATIONAL MONEY ORDER TOGETHER WITH YOUR ORDER DETAILS
3. OR USE YOUR ACCESS, VISA, MASTERCARD OR EUROCARD & CALL OUR CREDIT CARD ORDERLINE * Min. order 5 PD DISKS

DEPT AU-02 • BARBICAN HOUSE
BONNERSFIELD • SUNDERLAND
SR6 0AA

FACSIMILE 091 564 1005
TELEPHONE 091 564 1400

© ADAM • M Start Computer Systems 1990

PROMPT DELIVERY
85a MANSFIELD RD,
DAYBROOK,
NOTTINGHAM,
NG5 6BH

COMPUTER LAB

24 HOUR ORDERLINE
TELEPHONE: NOTTM.
(0602) 673674/673672

HARDWARE

AMIGA PACKS

Inc Modulator/Workbench/ The Very First/Extras/Basic.
Screen Gems Pack £349.00
Class of the 90's Pack £499.00
Amiga 2000 please ring for the best prices
Amiga 3000 please ring for the best prices

NEO-GEO

Please ring for best discounts on hardware and software - The
very best games machines in the world today!

SEGA MEGADRIVE

Megadrive £149.00
Software all at discounted prices, please ring for details.

PRINTERS

Star LC10 £156.00
Star LC200 Colour £215.00
Star LC24-10 £235.00
Commodore MPS 1230 £140.00

MONITORS

Atari SM124 high res mono £140.00
Phillips 8833 stereo monitor £249.00

SOFTWARE

We carry an extensive range of software for
ALL machines, all at discounted prices - at
least 25% off R.R.P., for example:

Badlands RRP £24.99 £12.50
Cadaver RRP £24.99 £18.50
European Super League RRP £19.99 £15.50
F19 Stealth Fighter .. RRP £29.95 £22.95
Gremlins 2 RRP £24.99 £18.50
Indie 500 RRP £24.99 £18.50
Lotus Turbo Esprit .. RRP £24.99 £18.50
New York Warriors .. RRP £19.99 £15.50
Night Breed RRP £24.99 £18.50
Paradroid 90 RRP £24.99 £18.50
Spy Who Loved Me .. RRP £19.99 £15.50
Voodoo Nightmare RRP £24.99 £18.00

MUSIC PROGRAMMES

Music X RRP 199.00 £148.50
Music X Junior RRP 79.99 £63.50
PRO-24 P.O.A.
RCS30/DRT RRP 299.00 P.O.A.
Master Tracks Pro .. RRP 229.00 P.O.A.
TFMX RRP 44.95 £39.50

PERIPHERALS

Amiga 1/2 meg upgrades £30.00
Amiga Second Drive £65.00
Naksha Mouse £33.50
Linnet Modem £145.00
Linnet 1200 Modem £212.00
A590 20Mb Hard Drive £365.00
Hardware Virus Protector £14.95

PLEASE ENQUIRE FOR THE LATEST PRICES ON
RAM CHIP UPGRADES FOR THE A590

PUBLIC DOMAIN DISKS

We have an extensive range of Public
Domain and Shareware programs. Please
ring for details of our Amiga and ST
libraries.

SEVEN DISK SPECIALS ONLY £10.95

AMIGA DEMO PACK 4

All of the best latest demos. Pack
changes all the time but never has same
demos twice.

AMIGA BUSINESS PACK

Spreadsheet, Wordprocessor, Database,
Journal, N.A.G. Inventory.

AMIGA UTILITY PACK 2

Virus Killers, Copiers, Disk Managers,
Rippers, Bootcopiers. Plus loads more.

AMIGA PROGRAMMERS PACK

Compilers, Assemblers, Source Coders,
Pascal, LISP, C manual etc.

BLANK DISCS

3 1/2" Quality Disks £12.00 for 30*
Fully Guaranteed DSD 100% Certified

ORDER BY PHONE

(0602) 673674

or

(0602) 673672

Delivery: Please add £6.50 courier delivery
for orders over £100 Add £2.00 for orders
under p&p for orders under £100

ALL PRICES INCLUDING VAT

PIXEL 3D

Producing 3D pictures and animations on the Amiga seems to me, to be one of the most challenging and satisfying uses of the computer. It's just like creating your own environment, your 'own little world' if you like. I just love playing god! One feels so secure getting everything just the way you want it. You can then interact with your new 'world' in any way you wish, go anywhere, drive, fly, spin and tumble. It can be as Surreal and dream-like as you could possibly imagine. Your only limit, really IS your imagination (oh, and possibly your family, your friends, your job, your bank manager...).

The trouble is that even the most simple of 3D objects seems to take an interminably long time to make and that's before you start fiddling around with the lights, camera lens and position, the ambient light, colours, textures...I could go on.

This gets even worse when you start to work in a professional situation, with clients who are used to seeing TV graphics produced on multi-thousand pound systems. Of course, they want the same, but they don't want to have to pay the same for it.

"...yes and then we'll have our logo fly in with the name spinning around it...do you think we could have that by Friday?..."

How long is it going to take me to construct an accurate model of their logo and worse still that fancy writing they use for the name?

What I need is a program that will SIMPLY turn a picture into a model.

"The more I use Pixel 3D, the more I am impressed with its simplicity and the superb quality of its output"

Pixel 3D doesn't seem to be anything stunningly useful at first glance but looks can be deceiving. There is already a well established program on the market for converting 2D images and brushes to 3D objects: The only problem with it, is that it is finicky and fiddly to use. You spend half your time adjusting the image trying to get it to come out the way you want in the 3D program. Even after hours of frustration, some images just won't seem to work. I could probably have done it quicker by hand. Doesn't this defeat the object?

Pixel 3D, on the other hand, is very much an automatic process. I certainly

felt somewhat helpless the first time I tried it. I just did not feel in control at all. No fiddling around deleting and moving points and adjusting the programs sensitivity in an endless attempt at the perfect conversion. Surely this is what using the Amiga is all about?

The following is a condensed version of the manual.

"Open Pixel 3D. Simply click on the output format (Sculpt, Silver, DXF, Videoscape). Decide whether you want extrusion and the amount. Choose the file to convert through a reasonable (functional but clear) requestor. Wait for a few seconds and the file is converted and automatically saved."

"Er...hang on...can't I just twiddle something before..."

No you can't and this is the program's greatest quality. I have now realised what an absolute blessing it is to have a totally automatic process that simply and quickly converts every single image that you throw at it. This is just how computers are supposed to work but very rarely do. And the result? Perfect 3D objects every single time. Yes, that is what I said, every time! The more I use Pixel 3D, the more I am impressed with its simplicity and the superb quality of its output. I wish all Amiga programs could be this graceful.

"I built an unusual object in Real 3D: an infinite hollow cylinder textured with my Indian pillow which sits on my large comfortable armchair"

Let me take you through a typical example of using Pixel 3D. I decided to produce a title for this article. This will be made up of a 3D version of the box Art in some sort of 3D environment.

I digitised the box and manual cover using Digi View 4 in 2 colours. I loaded this into Deluxe Paint III and cleaned it up a little.

'PIXEL' was vertically bent and saved as a brush, '3D' stretched and saved as a brush.

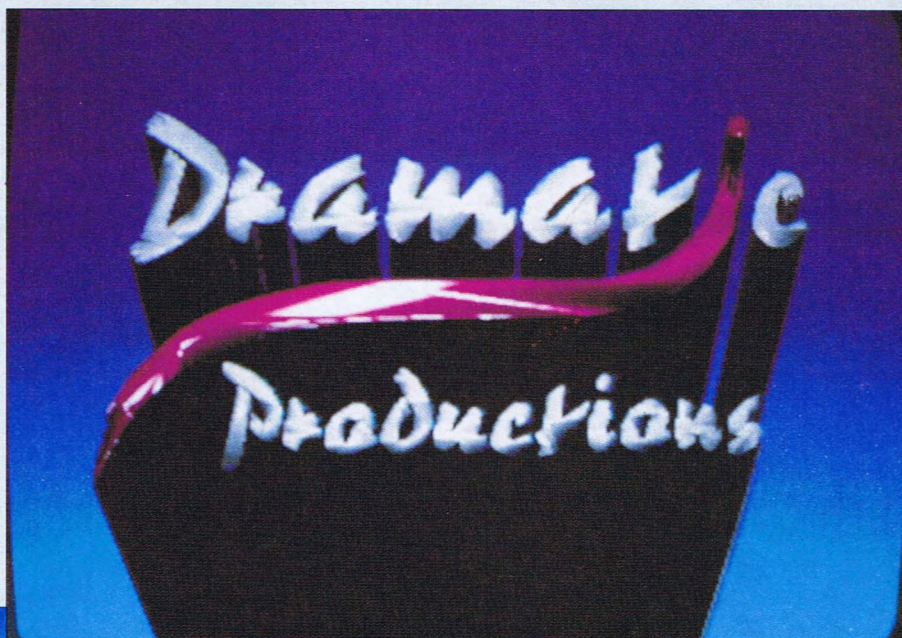


Both brushes were converted in Pixel 3D (Both perfect). This suddenly becomes the quickest and most 'instantly' successful stage of production. Hence it is highly time (and therefore cost) effective.

These new objects were now loaded into Sculpt Animate 4D. I increased the extrusion of '3D' and made the sides out of metal. Add a sphere, a lamp and set the camera up. Ray trace and save.

Meanwhile I built an unusual object in Real 3D: an infinite hollow cylinder textured with my Indian pillow which sits on my large comfortable armchair. This was painted in an infinite spiral around the inside of the cylinder and I 'sat' in the middle. Render and save. Load them both into Photon Paint 2 and merge together.

The result is a composition that I could not possibly have produced with tradi-



"The other result is the Amiga-specific phenomenon known as 'jaw dropping'. I still find it incredible what you can do with this computer"

tional Art & Design solutions. The other result is the Amiga-specific phenomenon known as 'jaw dropping'. I still find it incredible what you can do with this computer.

What other computer and software could promote such exciting creativity and produce such stunning images for so little investment? The Amiga is truly the artists computer.

So, after using Pixel 3D for about a week, it has now become an integral and almost transparent part of my creative productions.

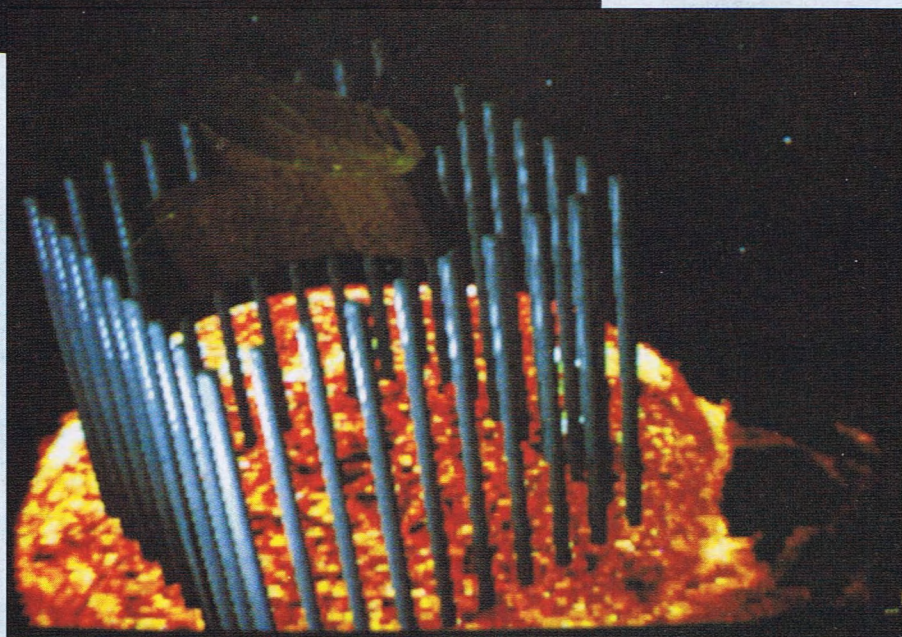
As to whether I would recommend Pixel 3D? Well, if you use your Amiga for any kind of 3D work, then I do not see how you can do without it. I can't.

B.M.

Price: £55.00

**Contact: Pulsar, Erlanger Str. 8-10,
5000 Köln 91**

Tel: (010 49) 221 873359



CAR-VUP

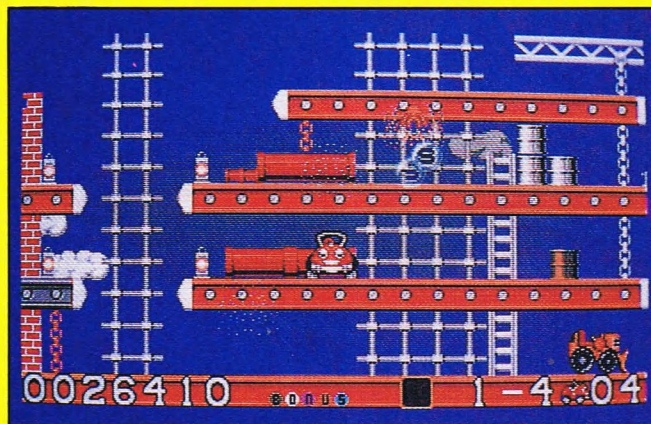
Core

Take just about any car game, and the emphasis will be on sleek, red, throbbing sports cars, speeding down Californian highways or round spectacular Grand Prix circuits. The car you're given in Car-Vup may be red, but that's where the similarities end. If you can imagine a kind of Rainbow Islands with a car as the central character, you'll have some idea of what it's all about.

Instead of the usual Ferrari, your vehicle this time is a stocky little thing, rather like Benny the Cab from Who Framed Roger Rabbit. Unfortunately for him, he has a problem with his

baddies, but occasionally you'll pick up a bonus weapon and fight back. Loads of other bonuses

"Put your favourite record on, sit back for a few games and you'll be at peace with the world; just the job after an hour and a half's journey home from work in a tube train full of halitosis sufferers"



undercarriage. He's seen the doctor about it, but is still waiting for the results of the tests, so for now has to make do without any brakes. This makes him a bit difficult to control at first, but with a number of his friends in grave danger, the problem has to take a back seat.

The route to his endangered chums takes you through countless levels of two-way horizontally

"He has a problem with his undercarriage. He's seen the doctor about it, but is still waiting for the results of the test"

scrolling platforms. As you drive across a platform, you change its state depending on where you are in the game. Some platforms need to be coloured in, others have to be straightened out, wiped clean and so on. To clear a level, you have to drive across every platform. Once you've done that, you're airlifted to the next by a cheerful helicopter.

The theme of each level dictates the type of enemies you'll face. The building site is patrolled by walking wheelbarrows, bricks and bulldozers. Bats, witches and ghosts are found in the haunted castle. Most of the time you're forced to avoid the



rain down throughout the game, and there's a down-pour of fruit and other extras as you move from one world to the next.

Jumping around the platforms, colouring in girders, all seems a bit lifeless at first. However, it's not long before you work up a strong addiction to it. Car-Vup is a very relaxing game. There's a weird kind of satisfaction gained from filling in the platforms, jumping from one to the other and scooping up all the bonuses. For a change you're not forced to play to the backing of a tinkly tune. Put your favourite record on, sit back for a few games and you'll be at peace with the world; just the job after an hour and a half's journey home from work in a tube train full of halitosis sufferers.

With completely smooth parallax scrolling rounding off the colourful graphics, Car-Vup is going to appeal to gamers of all generations. It's simple and easy enough to control, so kids are going go for it, and it's just such a pleasant, undemanding game that the rest of us will find ourselves hooked in no time.

T.H.

Graphics: 80% Sound: 78% Playability: 82%

Absolute Value: 81% Price £24.95



SOUNDTRAP 3 AUDIO SAMPLER

1. HIGHEST QUALITY
2. SMALLEST ON THE MARKET
3. FITS A1000 OR A500/2000
4. PRINTER PASS-THRU
5. GAIN CONTROL
6. SOFTWARE, SCREWDRIVER & LEAD INCLUDED.
7. COMPREHENSIVE MANUAL

UNLESS OTHERWISE STATED, ALL OUR PRODUCTS CARRY A 12 MONTHS WARRANTY, PLUS OMEGA PROJECTS PRIDE UNLIMITED SUPPORT

MINI-MIDI INTERFACE + SOFTWARE

1. HIGHEST QUALITY
2. SMALLEST ON THE MARKET
3. FITS A500/2000/1000**
4. DATA INDICATORS FITTED
5. 2 METRES CABLE BUILT IN
6. FULLY OPTO-ISOLATED
7. TRIED & TESTED DESIGN

** A1000 REQUIRES SPECIAL ADAPTER



A500 REPLACEMENT DRIVE 59.95
A2000 INTERNAL DRIVES 59.95
MIDI LEADS 1.2MTR PAIR 2.95
MIDI LEADS 3.0MTR PAIR 3.95
MIDI LEADS 5.0MTR PAIR 4.95
23 WAY M or F (NO HOOD) 1.49
23 WAY M or F (WITH HOOD) 1.99
4 CHANNEL AUDIO MIXER 34.95
!!! INCLUDING MICROPHONE
A590 RAM CHIPS (1 meg) 28.00
B2000 DRAMS (2 MEG) 112.00
A3000 ZIPs (1 MEG) 256 * 4-80 65.00
A3000 ZIPs (4 MEGS) 1024*4 -80 299.00
A3000 INTERNAL DRIVE 59.95
3.5" FLOPPY DISKS PER/10 05.50

S.TRAP 3 + MINIMIDI 47.50
A500 512K W/CLOCK 29.99
2MEG A500 INTERNAL 175.99
8MEG EXTERNAL OK 175.00
8MEG EXTERNAL 2MEG 279.99
8MEG EXTERNAL 8MEG 529.99
2MEG INMATE + 68881 349.95
OK EXPANDER BOARD 99.99
8MEG A1000 BRD. 2M 279.99
OTHER BOARDS IN STOCK POA
ACCELERATOR CARDS (A500/2000)
68030 RACER 25MHZ 375.00
68030 RACER 33MHZ 499.00
68030/68882 25MHZ 525.00
68030/68882 33MHZ 675.00

SOUNDTRAP3 + AUDIOMASTER 2 54.99
SOUNDTRAP3 + AUDIOMASTER 3 84.99
MINI-MIDI + MUSIC X 94.95
BYTE'N'BACK (THE FASTEST/BEST HARD DISK BACKUP UTILITY) 19.99
X-COPY PROFESSIONAL v3.1 32.95
AUDIOMASTER II THE BEST SAMPLER SOFTWARE AVAILABLE 29.99
3.5 EXTERNAL DRIVE + ON/OFF 59.99
3.5" DRIVE WITH TRACK COUNTER 76.95

A590 0k 299.00
A590 2Meg 354.95

SOON TO BE RELEASED

OMEGA'S OWN POWER AMP
ENHANCES THE SOUND OF YOUR
AMIGA LIKE NOTHING ELSE AVAILABLE
PHONE FOR DETAILS

**FATTER AGNUS
CHIPS**
NOW IN STOCK AT ONLY
69.95
WHILE STOCKS LAST



OMEGA PROJECTS

14 DERWENT CLOSE
CULCHETH, WARRINGTON
CHESHIRE, ENGLAND
WA3 5DY

TELEPHONE 0925-76-3946
0860-795260

ALL CHEQUES, P.O., ETC
SHOULD BE MADE PAYABLE
TO OMEGA PROJECTS.
WE ALSO TAKE ACCESS.
VISA, MASTERCARD &
EUROCARD.
PLEASE NOTE THAT CREDIT
CARD CUSTOMERS, SHOULD
CLEARLY STATE THEIR CARD
NUMBER, EXPIRY DATE, &
CARD HOLDERS FULL NAME &
ADDRESS



ALL PRICES INCLUDE VAT & DELIVERY BY POST
ITEMS SHIPPED BY CARRIER WILL BE CHARGED AT COST

SORRY! THE WORLD IS OUR LIMIT!

TOP QUALITY 3.5" DS/DD DISCS AT EXPORT PRICES
ALL OUR DISCS ARE GUARANTEED

CALL FOR TOP
PRICES ON ANY
AMIGA
SOFTWARE

NUMBER OF DISCS ORDERED	PRICES PER DISC IN BOXES OF 10 WITH LABELS					
	GERMANY DM	U.K. £	U.S.A. \$	ITALY LIRE	SWEDEN KRONA	SPAIN PESETA
10-90	0.96	0.33	0.65	740	3.60	62
100-490	0.92	0.32	0.63	710	3.50	60
500 +	0.87	0.30	0.59	670	3.30	56
	IN BOXES OF 50 WITHOUT LABELS					
50-450	0.87	0.30	0.59	670	3.30	56
500+	0.83	0.29	0.57	640	3.20	53
POSTAGE (per order)	10.00	3.50	7.00	7700	38.00	650

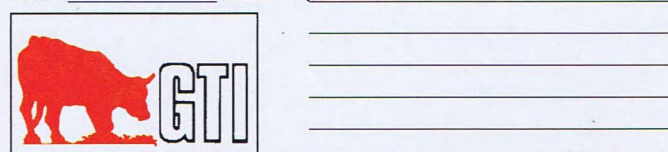
Outside Europe : Shipping charged at cost.
Payments accepted in other currencies at current exchange rate against DM.
Please Note: These prices do not include any local taxes (eg VAT)
Prices subject to variation following changes in exchange rates etc.

Within U.K. please send orders to our agent:-
N. Croxton, 27 Jacobean Lane, Knowle, Solihull,
West Midlands B93 9LP.
Tel: 056477 8608

To: **GTI International Amiga Service, Zimmersmuhlenweg 73, 6370 Oberursel, West Germany.**
Telephone (49) 6171 73048 Fax (49) 6171 8302

Please send me _____ 3.5" DS/DD Discs in boxes of ☐ 10 ☐ 50.

Name _____ Address _____



Method of Payment:

- ☐ Eurocheque enclosed.
- ☐ Cash Enclosed (Please use registered mail!)
- ☐ Acces/Visa/Eurocard/Mastercard/Amex/Diners
- ☐ (Credit Card Number _____ Expiry _____)
- ☐ Cash-on-delivery (only available in Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland).



POWERMONGER



ELECTRONIC ARTS

Populous II? Well, not exactly. You'll have to wait a little longer for that, but until then you can satisfy your megalomania with Bullfrog's latest world simulator.

First impressions suggest that Powermonger is something more than a re-hash of Populous. Take a closer look however, and you'll soon realise this is far from the truth. Big games always seem to go down well with strategists, and although it's not hung like a 60 billion location Mike Singleton game, Powermonger's world is about as big as anyone could ask for. There are 195 territories in all. Starting from the top left corner of the map, you're ambition is to work your way through the territories to the opposite corner. At your journey's end, the final battle with the island's occupants will decide just who rules the world.



"The presentation is far removed from the simple block-graphic style still seen in most battle simulators, bringing the whole idea of wargames right up to date"

Your conquest begins with you in control of a young and enthusiastic captain of a modest army. Although it might seem like a good idea to just scoot down to the opposite corner of the map, you'll find you're stuck on the first island. Before you can move to the next island or territory, you first have to gain control of your current surroundings. Each village in the vicinity is ruled by one of many leaders. Some leaders may have

a fairly expansive empire, while others could just be the local hero. Gaining control of these villages can be achieved in one of two ways. Either you join forces to make an alliance with the villagers, or you take the more common route, and launch an attack.

Whether you win or lose these battles depends, of course, on the strengths of both sides. To improve your chances in battle, you can take care to avoid long marches across hilly ground, especially during the winter months. A well-armed band of men is also much more likely to come out on top. Preparing your army for battle is actually more important than your interaction in the battle itself. When food is scarce over the winter, the best place for your men is the village workshop. Click on the "invent" icon and your followers will chop down a few trees, maybe mine a little iron-ore, and set about making weapons and other items to be traded with neighbouring settlements.

Unlike Populous, Powermonger's gameplay is more along the lines of a traditional wargame. The conquest theme is far from a new idea, but it's one that's rarely implemented as well as this. The presentation is far removed from the simple block-graphic style still seen in most battle simulators, bringing the whole idea of wargames right up to date. Apart from the extremely effective 3D graphics, the rest of the screen is well laid out, providing a much friendlier user-interface than the usual menu system. My only gripe here is that the text is absolutely minute. It can be hard to read on a good monitor, so fuzzy TVs could lead to a few problems.

The speed of the game can be set by the player, which is a useful feature, allowing you to get to grips with the game in the early stages, and also giving you the opportunity to "fast-forward" the less-active times of year. It gets another point over the competition with its use of sound. Whatever your men are doing, there's almost always a sound to go with it. Order them to

MONGER



Once you've managed to get two thirds of the territory's inhabitants to follow you, you can choose your next target. As your conquest

"Before you can move to the next island or territory, you first have to gain control of your current surroundings"

gathers momentum, you'll be joined by captains whose armies you defeat, allowing you to delegate various mini-missions. However, you're not the only one with dreams of world domination. As time goes by, the power of opposing captains gets steadily larger, with alliances and empires making your job even tougher.

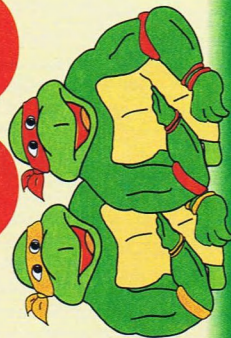
invent, and you'll hear the felling of trees, followed by the noises of their tinkering in the workshop. Even when they're just camped outside a settlement, there's still the crackle of the camp fire.

Because of its fresh approach, Powermonger is going to attract more than just hard-core wargamers. The ongoing conquest should help its lifespan, and for anyone who really gets into the game, it could provide a distraction for months on end. If that does prove to be the case, then the £30 price tag would be well justified. In any case, anyone looking for an alternative to the stack of arcade games released recently could do a lot worse than give Powermonger a shot. *T.H.*

Graphics: 89% Sound: 80% Playability: 63%

Absolute Value: 82% Price £29.95

GORDON HARWOOD



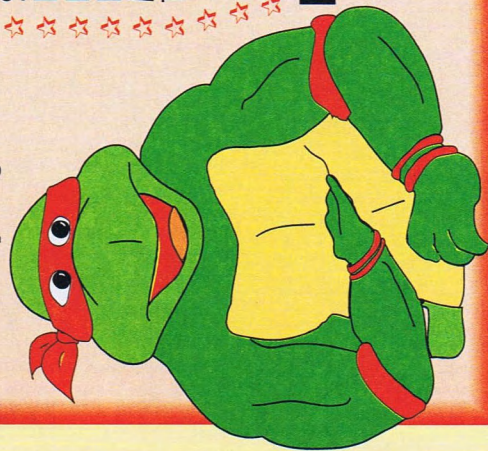
Bring you "Heroes in a Half Shell"™

Amiga POWERPLAY

Raphael's PACK 1

THAT'S RIGHT HARWOODS HAVE PUT TOGETHER THE ULTIMATE PACKS YET AGAIN
STARTING WITH RAPHAEL'S AMIGA PACK 1 WITH 15 GREAT GAMES!

Just look at
what you get...



- ★ AMIGA A500 COMPUTER (See standard features list at bottom of this page)
- ★ TEENAGE MUTANT HERO TURTLES ★ PLUS 10 MORE GREAT GAMES...
- ★ SHADOW OF THE BEAST II ★ Datastorm
- ★ DAYS OF THUNDER ★ Dungeon Quest
- ★ BACK TO THE FUTURE II ★ E-Motion
- ★ NIGHT BREED ★ Grand Monster Slam
- ★ MICROSWITCHED JOYSTICK ★ RVF Honda
- ★ TAILORED DUST COVER ★ AND...DELUXE PAINT II
- ★ 10 BLANK 3.5" DISKS
- ★ DISK STORAGE CASE
- ★ MOUSE MAT

RAPHAEL'S PACK
PRICED AT AN
INCREIBLE...

£399

... You won't need anything else for ages!

JUST ADD £30 TO
YOUR AVAILABLE MEMORY TO 1Mb.
WITH OUR PRO-RAM PACK! (See page 4)



Amiga MONITORS

BRAND NEW PHILIPS CM 8833/II STEREO COLOUR MONITOR

Stereo High Resolution Colour Monitor

The ALL NEW Philips CM8833/II is the successor to the ever popular CM8833. This versatile multipurpose 14-inch monitor offers excellent colour graphics performance with a wide range of home and personal computers.

The CM8833/II can also be used as a TV Monitor when connected to either a VCR or TV tuner (available separately). Please ask for further details.

- ☐ RGB/Al, TTL, Comp. Video & stereo audio inputs
- ☐ Can also be used as a TV with tuner or VCR
- ☐ Features retractable foot ☐ Twin Speakers
- ☐ FREE lead for YOUR computer ☐ Earphone Jack Socket
- ☐ FREE 12 Month on site service warranty.

GREAT NEW PHILIPS MONITOR
AT THE OLD PRICE OF ONLY...

£249

COMMODORE 1084S STEREO COLOUR MONITOR

Commodore's Own Stereo High Resolution Colour Monitor

- ☐ RGB/Al/TTL, Comp. Video/Audio Inputs
- ☐ Can be used as TV with a tuner or VCR
- ☐ Twin Speakers for stereo output
- ☐ Supplied with cables for A500, CGA PC, C16-64-128

£259

NEW
PHILIPS CM8833/II



Amiga

POWERPLAY

Leonardo's PACK 2

PACK 2 COMES TO YOU FROM LEONARDO AND INCLUDES THE FOLLOWING...

RAPHAEL'S BRILLIANT AMIGA PACK 1

The fantastic Amiga and ALL THE EXTRA'S detailed in Raphael's Powerplay Pack 1 above, AND then you also get...



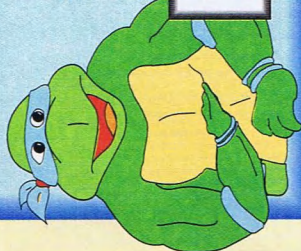
THE ALL NEW PHILIPS CM8833/II STEREO COLOUR MONITOR



Twin Stereo Speakers, Green Screen Switch, Lead to Amiga, Free Tailored Dust Cover and 12 Months on-site warranty (See monitor panel for details)

A SPECIAL PACK FROM LEONARDO TO LET YOU SEE THOSE GAMES WITH SUPERB CLARITY AND IN FANTASTIC STEREO FOR ONLY...

£629*



Amiga

POWERPLAY

Donatello's PACK 3

PACK 3 COMES TO YOU FROM DONATELLO AND INCLUDES THE FOLLOWING...

RAPHAEL'S BRILLIANT AMIGA PACK 1

The fantastic Amiga and ALL THE EXTRA'S detailed in Raphael's Powerplay Pack 1 above, and then you also get...



THE ALL NEW PHILIPS CM 8833/II STEREO COLOUR MONITOR

With FREE Dust Cover and Cable to your Amiga and including a 12 Months on-site warranty (See monitor panel for details)



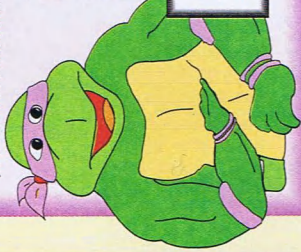
THE BRAND NEW STAR LC200 COLOUR PRINTER...

150/40 cps, Full Colour 9 Pin NLQ Dot Matrix Printer with FREE Dust Cover and cable to your Amiga (See printers on page 3 for further details)



A SPECIAL MONITOR AND PRINTER PACKAGE FROM DONATELLO TO SET YOU UP COMPLETELY AND ALL AT A PRICE THAT'S GOT REAL TURTLE POWER...

£829*



Amiga 1Mb.

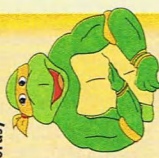
POWERPLAY

Michaelangelo's PACK 4

PACK 4 COMES FROM MICHAELANGELO AND INCLUDES THE FOLLOWING...

A MORE SERIOUS PACKAGE ASSEMBLED BY MICHAELANGELO AND INCLUDING ALL THE FOLLOWING...

- ★ AMIGA A500
- ★ COMPUTER WITH 1Mb.
- ★ TEENAGE MUTANT HERO TURTLES PUBLISHERS CHOICE (DTP inc. Kindwords)
- ★ MIDI-MASTER INTERFACE
- ★ MR T's MIDI RECORDING STUDIO
- ★ BBC BASIC EMULATOR
- ★ MAXIPLAN 500 SPREADSHEET
- ★ SUPERBASE PERSONAL DATABASE
- ★ AMIGA LOGO
- ★ FULLY MICROSWITCHED JOYSTICK
- ★ TEN BLANK 3.5" DISKS & DISK WALLET
- ★ DELUXE PAINT II, PLUS...TEN GREAT GAMES



Datascram, Dungeon Quest, E-Motion, Grand Monster Slam, RYF Handa, Drivin Force, Pipemania, Rock 'N' Roll, Swooke, Towers of Babel,

BUILD YOUR OWN PACK... PACK 5-As above with CM8833 £799
PACK 6-As Pack 5 + LC200 Col. Printer £999
(Or choose an alternative from our range & adjust by the difference in price)

MICHAELANGELO'S SPECIAL PACK AT A SPECIAL PRICE OF JUST... **£579***

The above pack is also available with First Steps Software as an alternative for Primary School age children
PHONE NOW FOR FULL DETAILS!

NOW WITH BRAND NEW FASTER STAR LC200 COLOUR PRINTER AND NEW PHILIPS CM8833/II MONITOR

Amiga 1Mb.

POWERPRO

Harwood's PACK 7

PACK 7 COMES TO YOU FROM HARWOODS AND INCLUDES THE FOLLOWING...

A PROFESSIONAL PACKAGE PUT TOGETHER FOR THE BUSINESS MINDED AMIGA USER

AMIGA A500 WITH 1Mb. MEMORY INC. CLOCK (See Standard Features List)



+ NEW PHILIPS CM 8833/II STEREO COLOUR MONITOR



+ NEW STAR LC200 9 PIN NLQ FULL COLOUR PRINTER
(Or choose an alternative from our range, and adjust by the difference in price)



+ A HOST OF BUSINESS SOFTWARE & ACCESSORIES...
PEN PAL V1.3 (Word Processor)... 1Mb.
SUPERBASE II PERSONAL (Database) SUPERPLAN (Spreadsheets)... 1Mb.

- ★ MICROSWITCHED JOYSTICK
- ★ 10 BLANK 3.5" DISKS
- ★ DISK LIBRARY CASE
- ★ MOUSE MAT
- ★ TUTORIAL DISK
- ★ DELUXE PAINT II
- ★ DAYS OF THUNDER
- ★ BACK TO THE FUTURE II
- ★ SHADOW OF THE BEAST II
- ★ NIGHT BREED
- ★ 3 TAILORED AMIGA DUST COVERS

WE MEAN BUSINESS AT ONLY... £899*

ALL OUR AMIGA's ARE UK SPECIFICATION AND INCORPORATE THE FOLLOWING...

- 512K RAM
- 1Mb Disk Drive
- TV Modulator
- 4096 Colours
- Multi-Tasking
- Speech Synthesis
- Amiga Basic
- Programming Language
- 4 Channel Digital Stereo Sound as standard

...AND ALL PRICES INCLUDE VAT AND STANDARD POSTAL DELIVERY SERVICE

IMPORTANT NOTICE "TEENAGE MUTANT HERO TURTLES" ***IMPORTANT NOTICE***

Mirrorsoft's official UK Software Licence, 'Teenage Mutant Hero Turtles' is scheduled for release during Nov. '90. Orders despatched before this release will have the software forwarded the moment it is available.
"Teenage Mutant Hero Turtles" software title - UK Copyright of Mirrorsoft.

*** FINANCE FACILITIES**
Finance with or without a deposit, can be tailored to suit your needs. Gordon Harwood Computers offer facilities to purchase using our budget account scheme. APR 36.8% (Variable). Available to most adults of eighteen years or over, subject to status. Simply phone or write and we will send you written details along with an application form. Applications, required in advance, available to full time U.K. mainland residents and overseas British armed forces personnel. Written quotations available on request. (Please refer to Page 3)



Please see page 4 for our easy ordering procedures. Just compare the service we offer!

GORDON HARWOOD HARWOOD HARWOOD

Computers

GORDON HARWOOD COMPUTERS
DEPARTMENT 4, 1/4, NEW STREET
ALFRETON, DERBYSHIRE, DE5 7BP
TEL: 0773 836781 FAX: 0773 831040

Amiga STORAGE

COMMODORE A590 20Mb HARD DISK DRIVE WITH 0.5 Mb. MEMORY FITTED FREE!

Commodore's own hard drive for the A500

- ☐ Autoboost with Kickstart 1.3
- ☐ Sockets for up to 2Mb RAM expansion
- ☐ DMA access ☐ External SCSI port
- ☐ Complete with 0.5 Mb. Memory FREE!

£299*

COMMODORE A590 20Mb HARD DISK DRIVE BUT UPGRADED TO A FULL 1Mb.

As above but with a total of 1Mb memory!

£319*

COMMODORE A590 20Mb HARD DISK DRIVE BUT UPGRADED TO A TOTAL OF 2Mb.

As above but with a 2Mb memory!

£349*

EXTERNAL FLOPPY DISK DRIVES with the following features...

- ☐ Disable switch ☐ Throughport ☐ Access light ☐ For A500/1000/2000/3000

CUMANA CAX 354 3.5" SECOND DRIVE

HARWOODS SUPERSLIM 3.5" SECOND DRIVE

- ☐ With EXTRA Long Cable

£74.95

£59.95

AMIGA GRAPHICS AND SOUND

NEW DISNEY ANIMATION STUDIO SOFTWARE LATEST PAL VERSION

Full featured state of the art animation program. Gives you the ability to create full length Disney style animated sequences (1 Mb recommended).

£99.95

MASTERSOUND

High quality 'Mono' Sampler. Mono samples are better than stereo when sampling instruments for your own music with soundtracker etc.

£33.95

AMAS

Combined stereo sampler and midi interface. Samples in Mono or Stereo.

£74.95

MIDI INTERFACE (5 PORT)

In, Out, Through + 2 Switchable Through/Out inc Cable

£24.95

MUSIC 'X' - Latest Full Edition Vers 1.1 SEQUENCING S/W

NOW WITH FREE 5 PORT MIDI INTERFACE (As above)

£79.95

AUDIOMASTER II

High quality sampling software. The Professionals Choice

£64.95

DIGIVIEW GOLD V.4 (Inc Cable & Digitpaint 1)

Digitises static images in black & white or FULL COLOUR (Using fillers provided). All resolutions supported (memory permitting). Creates IF & HAM files. Uses B&W (or colour with B&W Mode) video cameras

£99.95

VIDI with Vidichrome 8 / W Grabber colour digitiser

Grabs black & white frames (in grey scales). 5-4 frames per second. Will store as many frames as you have RAM (16-20 on 1Mb, 60 with 3 Mb) Inc. FREE Vidichrome colour digitising S/ware (worth £19.95) & cables

£99.95

COLORPIC...The best colour grabber by far!

Instant colour frame grabbing from moving video. Capture superb digitised video images in a range of resolutions from standard composite video source eg domestic TV video rec. or camera in a 50th of a second.

£439.95

RENDALE 8802 Including Cables & Deluxe Video Animation Software

Home/Seam Pro standard, allows computer display to be mixed with any incoming composite video signal.

£189.95

PODSCAT 12" x 12" Graphics Tablet complete

Supplied with driver software, it replaces your mouse and thus works with ALL applications software. Also available for IBM PC & Compatibles

£219.95

Free... Followed by all Dot Matrix Printers

PRINTERS

All printers in our range include the following features...

- ☐ Standard Centronics parallel port unless otherwise stated for direct connection to Amiga, PC's, ST etc. and come with a... FREE CONNECTOR LEAD & TAILORED DUST COVER!

All the characters Per Second speeds quoted below are Draft/10 at 10qpi

NEW STAR LC 200 RANGE OF PRINTERS AVAILABLE NOW!

All the new printers in the LC200 range have the following features...

- ☐ 80 Column Dot Matrix
- ☐ Push and Pull Tractor Feeds
- ☐ Rear and Bottom Feeds
- ☐ Programmable from frontpanel, no dip switches
- ☐ Micro paper feed
- ☐ Reverse paper feed
- ☐ Paper park with Auto Single Sheet Paper Loading
- ☐ 12 Month Warranty

STAR LC200 GREAT NEW COLOUR PRINTER - 185/40 cps

This is the one in our packs!

- ☐ 240 dpi - 9 Pin COLOUR
- ☐ Massive 16K Buffer
- ☐ 8 Resident Fonts
- ☐ Front Panel Pitch Selection
- ☐ Max. paper width 11.7"
- ☐ Supplied with colour & mono ribbons
- ☐ Faster than the old LC10 Colour bar still at the same competitive price

STAR LC24-200 NEW 24 PIN MONO PRINTER - 220/55 cps

New Star 24 pin that means business!

- ☐ 360 dpi - 24 Pin MONO
- ☐ 7K Buffer expandable to 39K
- ☐ 10 Resident Fonts
- ☐ Front Panel Pitch Selection
- ☐ Max. paper width 11.7"
- ☐ Supplied with mono ribbon
- ☐ Faster than the old LC24-10
- ☐ Extra font cartridges available

ORDERING MADE EASY

Before you choose from whom to purchase, please give us a call. We are always more than happy to discuss your requirements, and answer any queries you may have...



ORDER BY PHONE: Phone our Order Hotline with your Access, Visa, Mastercard or Lombard Credit Charge Card quoting number & expiry date.

ORDER BY POST: Make cheques, bankers building society drafts, or postal orders payable to GORDON HARWOOD COMPUTERS. (Personal or business cheques take 7 days to clear from day of receipt whereupon your order will be despatched)

Please send Name, Address, and most importantly if possible, a Daytime Telephone Number along with your order requirements. Please check you are ordering from one of our latest advertisements before posting (phone if you require confirmation).

Please remember that for example many September publications appear during August, therefore prices you see may have changed (either up or down).

FREE POSTAL DELIVERY: Goods in UK Mainland (£5.7 day delivery).

OR COURIER SERVICE: Add £5 per major item for next working day delivery, UK Mainland most regions.

(Goods normally despatched on day of ordering or payment clearance)

EXPORT ORDERS: Most items are available at TAX FREE PRICES to non UK residents when visiting us or for export shipment. Please contact us for ordering information.

REMEMBER AFTER YOU'VE BOUGHT FROM HARWOODS, WE'LL STILL BE HERE...

TECHNICAL SUPPORT: You will be given our Exclusive Technical Support Phone Number to call should you require any help or advice on any aspect of the system you have purchased.

12 MONTH WARRANTY: Items proving faulty within 30 days of purchase are replaced with NEW UNITS unless otherwise stated. For the whole guarantee period, warranty service will be completely FREE OF CHARGE and a FAST turnaround is GUARANTEED by our OWN ENGINEERS!

COLLECTION FACILITY: Any computer, monitor or printer requiring warranty service can be collected from your home FREE OF CHARGE during the guarantee period (UK Mainland only)

FULL TESTING PROCEDURE: All computers are tested prior to despatch, and all items are supplied with mains plug and leads as required - just connect up and use straight away.

REMEMBER WE'RE NOT JUST ANOTHER MAIL ORDER COMPANY...

All listed prices are what YOU PAY, and there are NO HIDDEN EXTRAS. VAT and postage are included, and prices are correct at time of going to press (Pack details may vary from time to time). Offers are subject to availability and to being the latest advertised packs and prices. Our offers are NOT supplied on a trial basis.

*** FINANCE FACILITIES**

Finance with or without a deposit, can be tailored to suit your needs. Gordon Harwood Computers offer facilities to purchase using our budget account scheme. APR 36.8% (Variable). Available to most adults of eighteen years or over, subject to status. Simply phone or write and we will send you written details along with an application form. Applications, required in advance, available to full time U.K. mainland residents and overseas British forces personnel. Showroom visitors: please ask for details of our in-store "Instant Account". Written quotations on request.

If you are already the holder of a Lombard Credit Charge Card you can use this to purchase from us (subject to your personal card limit)

VISIT OUR NEW SHOWROOM

Please pay us a visit where our full range of advertised products, AND MORE, is on sale. ALL UNDER ONE ROOF, in pleasant surroundings at our new purpose fitted showroom. There's plenty of parking close by.

OPENING TIMES: 9.00 til 5.00 Monday to Saturday 9.00 til 1.00 Wednesday

Closed on Sundays

STAR LC24-200 NEW COLOUR PRINTER - 220/55 cps
 Colour version of the new LC24-200 Mono

- 360 dpi - 24 Pin COLOUR
- 30K Buffer expandable to 62K
- 10 Resident Fonts
- Front Panel Pitch Selection

STAR LC10 - Up to 120/25 cps
 Our most popular Mono Dot-Matrix printer and at a super low price

- Multiple font options easily accessible from front panel
- Excellent paper handling facilities

STAR LC 24-10 - Up to 180/60 cps
 24 Pin version of the Star LC Series with

- Exceptional letter print quality
- 360 x 360 dpi Graphics

STAR X8 PRINTER RANGE Up to 240/80 cps - 24-10 COLOUR, OR 24-15 COLOUR
 Two very fast LQ 24Pin Colour Printers (15" Wide Carriage versions 41 exp. to 201K buffer)

- Exceptional print quality
- 4 x 48Pin super letter quality fonts
- 24 x 24Pin near letter quality fonts

STARSCRIPT - 8ppm POSTSCRIPT LASER
 Up to the minute technology Laser Printer

- 300 DPI, 2Mb. Upgradable to 5Mb.
- Emulations inc: HP Series II, Epson Inc. 12mth on site warranty (UK Mainland)
- EX800, IBM Proprietary & Diablo 630
- Every desktop publisher's dream

HEWLETT PACKARD PAINTJET A4
 Best quality full colour printer at a realistic price

- Parallel, Centronics or Serial RS232C I/F (please specify with order)
- For presentation graphics, CAD and technical/scientific applications
- Full page colour of graphics on paper in 4 minutes (typical)
- Non impact printing
- Virtually silent, 43dba
- 12 Months on-site warranty (UK Mainland)

CITIZEN SWIFT 24 PIN COLOUR - Up to 160/50 cps
 24 Pin Colour Printer

- Push and pull tractor built-in with bottom feed for labels & multi-part stationery
- 2 Year Citizen warranty

CITIZEN SWIFT 9PIN COLOUR - Up to 160/40cps
 New super high spec 9pin colour printer

- 8K Buffer 4 Fonts
- Push and pull tractor built-in
- Feed for labels, multi part stationery
- 2 Year Citizen warranty

CITIZEN 120D+ - Up to 120/25 cps
 Very reliable low cost printer (please specify interface on order)

- Interchangeable interfaces for Centronics RS 232 or Serial type for IBM 64 etc
- Full 2 Year manufacturers warranty

STAR LC24-200 NEW COLOUR PRINTER - 220/55 cps
 Colour version of the new LC24-200 Mono

- 360 dpi - 24 Pin COLOUR
- 30K Buffer expandable to 62K
- 10 Resident Fonts
- Front Panel Pitch Selection

STAR LC10 - Up to 120/25 cps
 Our most popular Mono Dot-Matrix printer and at a super low price

- Multiple font options easily accessible from front panel
- Excellent paper handling facilities

STAR LC 24-10 - Up to 180/60 cps
 24 Pin version of the Star LC Series with

- Exceptional letter print quality
- 360 x 360 dpi Graphics

STAR X8 PRINTER RANGE Up to 240/80 cps - 24-10 COLOUR, OR 24-15 COLOUR
 Two very fast LQ 24Pin Colour Printers (15" Wide Carriage versions 41 exp. to 201K buffer)

- Exceptional print quality
- 4 x 48Pin super letter quality fonts
- 24 x 24Pin near letter quality fonts

STARSCRIPT - 8ppm POSTSCRIPT LASER
 Up to the minute technology Laser Printer

- 300 DPI, 2Mb. Upgradable to 5Mb.
- Emulations inc: HP Series II, Epson Inc. 12mth on site warranty (UK Mainland)
- EX800, IBM Proprietary & Diablo 630
- Every desktop publisher's dream

HEWLETT PACKARD PAINTJET A4
 Best quality full colour printer at a realistic price

- Parallel, Centronics or Serial RS232C I/F (please specify with order)
- For presentation graphics, CAD and technical/scientific applications
- Full page colour of graphics on paper in 4 minutes (typical)
- Non impact printing
- Virtually silent, 43dba
- 12 Months on-site warranty (UK Mainland)

CITIZEN SWIFT 24 PIN COLOUR - Up to 160/50 cps
 24 Pin Colour Printer

- Push and pull tractor built-in with bottom feed for labels & multi-part stationery
- 2 Year Citizen warranty

CITIZEN SWIFT 9PIN COLOUR - Up to 160/40cps
 New super high spec 9pin colour printer

- 8K Buffer 4 Fonts
- Push and pull tractor built-in
- Feed for labels, multi part stationery
- 2 Year Citizen warranty

CITIZEN 120D+ - Up to 120/25 cps
 Very reliable low cost printer (please specify interface on order)

- Interchangeable interfaces for Centronics RS 232 or Serial type for IBM 64 etc
- Full 2 Year manufacturers warranty

We are proud to announce that Star have appointed Gordon Harwood Computers as both a Star Corporate Preferred Reseller and Star Gold Dealer in recognition of our commitment to their products and the levels of service and support we provide...

MAKE HARWOODS YOUR FIRST CHOICE FOR STAR PRINTERS

Printer...	PRINTER RIBBONS	SINGLE	6 PACK
STAR LC10 LC10 Colour & LC10 MKII BLACK	STAR LC10 COLOUR	£4.95	£24.95
STAR LC10 COLOUR	STAR LC10 X824-10 & X824-15 BLACK	£6.90	£34.95
STAR X824-10 & X824-15 COLOUR	STAR X824-10 & X824-15 COLOUR	£14.95	£74.95
STAR LC15, FR10 & CITIZEN 120D/130E/LS10 & IBM MPS 1200/1250 BLACK	STAR LC15, FR10 & CITIZEN 120D/130E/LS10 & IBM MPS 1200/1250 BLACK	£7.49	£39.95
CITIZEN SWIFT 9 BLACK & CITIZEN SWIFT 24 BLACK	CITIZEN SWIFT 9 BLACK & CITIZEN SWIFT 24 BLACK	£4.95	£26.95
OLIVETTI DM 100 BLACK & OLIVETTI DMPS 1500/1550 & OLIVETTI DM 105 COLOUR	OLIVETTI DM 100 BLACK & OLIVETTI DMPS 1500/1550 & OLIVETTI DM 105 COLOUR	£6.95	£39.95
		£12.95	£69.95

BLANK DISKS with labels

- 10 Genuine Commodore 3.5" branded
- 10 Unbranded 3.5" certified
- 10 Unbranded with library case 3.5" certified
- 80 Unbranded 3.5" certified
- 80 Unbranded with lockable storage case 3.5" certified
- 100 Unbranded 3.5" certified

MICROSWITCHED JOYSTICKS

- Competition Pro Mean Green
- Zipslick (autofire)...The Best!

NAKSHA MICROSWITCHED MOUSE-Amiga/ST Amstrad PC GOLDEN IMAGE OPTICAL MOUSE-Amiga MODE SWITCHBOX-For rendle 8802

BOOKS For beginners and Experts alike!

AMIGA FOR BEGINNERS - VOL. 1 ABACUS BOOKS. From unpacking your Amiga to creating your own icons, includes first use of basic and extras disk.

AMIGA BASIC INSIDE AND OUT - VOL. 2 ABACUS BOOKS. The definitive step-by-step guide to programming your Amiga in basic.

AMIGA MACHINE LANGUAGE - VOL. 4 ABACUS BOOKS. Practical guide to learning 68000 assembler language on the Amiga

AMIGA DOS INSIDE AND OUT - VOL. 8 ABACUS BOOKS. The complete guide to Amiga DOS and the CLI.

AMIGA PROGRAMMERS HANDBOOK II - SYBEX. In depth reference to device I/O programming for the Amiga series of computers.

AMIGA HARDWARE REFERENCE MANUAL - ADDISON WESLEY written by the technical experts at Commodore Amiga Inc, USA....The people who designed your Amiga. Hardware level machine code prog. at advanced level.

EDUCATIONAL SOFTWARE For most age groups!

PLAY AND READ - Ages 4 to 9. The complete reading tutor. Part 2 teaches spelling to the beginner reading.

UNCLE P'S CON-SOUND-TRATION - Ages 4 and up. Three graphical concentration games, 4 skill levels each.

DINOSAUR DISCOVERY KIT - Ages 3 to 8. Zug the talking Megacore helps children build early reading skills.

THE THREE BEARS - Ages 5 to 10. Develops imaginative thought/reading skills.

SPELL BOOK - Ages 4 to 6. Developed with the help of a Primary School Head Teacher to aid spelling skills.

PRIMARY MATHS COURSE - Ages 3 to 12. Complete 24 Programme Course.

MATH BLASTER PLUS - Ages 6 to 12. Maths fundamentals, teacher designed.

BETTER MATHS - Ages 12 to 16. Higher level to Linear/Quadratic Equations.

Shown above is ONLY a selection of books and software...phone for details of lots more!

PRO-RAM PACK

DEALIN' DIEGO'S DYNAMITE DEAL!

512K MEMORY EXPANSION

16 Chip, not 4 (extremely important), same configuration as Commodore AS01 for guaranteed full compatibility with latest version 8372A Amiga 1Mb Bitter.

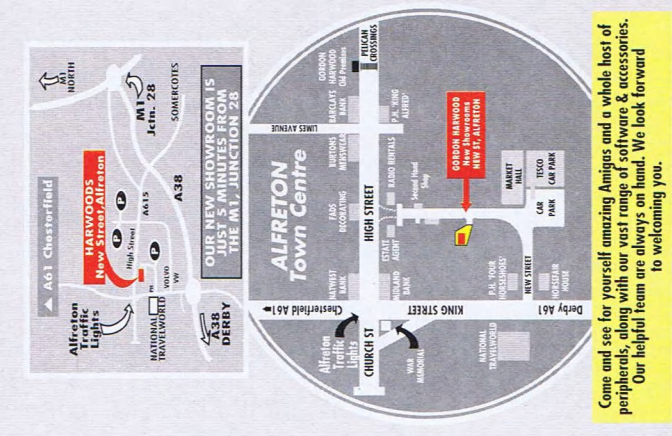
Compatible with all AS00's as a real alternative to Commodore's own AS01 RAM Expansion but at a very much lower price.

British Made with Enable/Disable Switch and Auto recharge battery backed real time clock.

£32.95

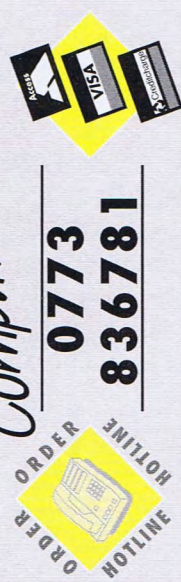
As always, our price includes VAT, Postage and Packing (UK Mainland)! All this for the incredible introductory Dealin' Diego Price of only...

A special deal to celebrate our NEW SHOWROOM



Come and see for yourself amazing Amigas and a whole host of peripherals, along with our vast range of software & accessories. Our helpful team are always on hand. We look forward to welcoming you.

GORDON HARWOOD HARWOOD HARWOOD Computers



0773 836781

GORDON HARWOOD COMPUTERS
 DEPARTMENT AUI/C4, NEW STREET
 ALFRETON, DERBYSHIRE, DE5 7BP
 TEL:0773 836781 FAX:0773 831040

CARTHAGE

Psygnosis

Have you ever fancied yourself as Ben Hur, living under the tyranny of ancient Rome? I have, and since hearing of Carthage just over a year ago I have eagerly awaited its release.

When Cinemaware's Defender of the Crown was released it depicted the Anglo-Saxon era of Robin Hood and his merry men, King of Chicago was placed in the American prohibition years in the 1920's, Wings was set during World War I, and Lords of the Rising Sun had its scene in ancient Japan. Other Cinemaware releases such as Rocket Ranger and It Came From the Desert were spin offs of the 1950's B-movie craze.

These games offered the gamesplayer the ability to play a part in some of the most popular type of movie scenarios. Now courtesy of Psygnosis, and probably surprisingly not Cinemaware, comes the Roman-dated Carthage. Moulded in the same way as the



Cinemaware releases, Carthage combines superb graphical arcade sequences with strategic gameplay.

The game is played on a 3-D fractal generated map of an area in North Africa, the centre of the Phoenician colony. Carthage is a prosperous city and its downfall would, most certainly, lead to the loss of the Phoenician colonies of North Africa and Spain.

Set in 146 B.C. the main hero is Diogenes, a Garrison Commander of the Carthaginian Army. His aim is to stop the might of the Roman Army descending on Carthage. To do this he must control the wealth of Carthage and distribute funds to cities in need. The more money a city has the more tax it will collect, and the more money Carthage receives from it will increase. Diogenes is able to transfer money between one city and another, or from Carthage to another city. While he is in a city he may enlist troops with the city's funds, or sell troops to bolster the city's coffers.



"Carthage is a prosperous city and its downfall would, most certainly, lead to the loss of the Phoenician colonies of North Africa and Spain."

Money is the key to winning the game, without controlling it Carthage stands no chance of being held. The city garrisons can only be bought with the wealth in the city, the mobile armies can only be re-supplied by city garrisons, and you, Diogenes, are the only Carthaginian who can distribute money and buy city garrisons.

Starting from Carthage Diogenes must travel throughout the province on his chariot taking the wealth from the capital to the smaller cities. When travelling between cities Diogenes takes command of his chariot and speeds along the dangerous roads. The sacks of gold which are



carried are constantly knocked off the chariot as it hits logs that are scattered along the unkept paths toward the next city. Roman assassins try to intercept Diogenes's chariot, and aim to run it off the road using their spiked-wheeled chariots. If they do all the money being carried by Diogenes is lost to them.

"Money is the key to winning the game, without controlling it Carthage stands no chance of being held"

The chariot run between cities is one of the most graphically attractive features of Carthage, and while it may be easy to travel from city to city, beating off the challenges from the Roman chariots, it is not easy to do so while keeping possession of the bags of gold.

At the start of the game a large Carthaginian army is formed and is led by Hasdrabul, the Carthaginian General. Diogenes has full control over this and a further four mobile armies, which



he must create by enlisting troops using a city's garrisons and wealth. While in any city Diogenes can enlist its garrisons to form an army which he can then dispatch to other cities to gather more garrison troops.

These armies can be sent to battle with the invading Romans when the opposing Generals are within fighting distance of each other. By using a zoom-in factor on the fractal map the small battalions of the army can be individually controlled to defend their General, or attack an opposing General. During the battle an update of battalion strength is displayed.

The battles are strategically fought, and not by arcade means - which will please a lot of tacticians - and with the fractal map showing surrounding landscape the tactics associated with fighting downhill/uphill can be planned.

The menu functions allow the loading and saving of games, the game speed, and a restart game option. The game tends to be a long affair so many sessions may be required to play a full campaign. The map displays are a little slow to update, but they are fractal generated to show landscapes for battle tactics, and can be zoomed into and out of.

Carthage is an excellent strategy game based around the Roman era and superb graphics and a strategic, rather than arcade, battle sequence strengthens it further.

P.K.



Graphics: 93% Sound: 76% Playability: 90%

Absolute Value: 88% Price £24.99

OPERATION COM-BAT

ELECTRONIC ZOO

If war erupts in the Middle East because of Saddam Hussain and the latest Gulf Crisis then close range combat will probably take precedence over long range nuclear strikes. If this, in fact, does happen then Commanders from both sides will control units of artillery and soldiers to gain tactical advantage. Those tactics will determine which side wins at the end of the day.

Operation Com-Bat is a strategy game based around the concept of close range operational battle. You can take control of a small detachment of artillery and wage war against the computer or a human enemy.

The game is a graphical strategy and is broken down into display maps and control areas. All decisions and moves are made using the tactical display and the tactical grid maps. The tactical grid map is a 32x20 block terrain map which displays your units and their positions, the known enemy positions, and the major landscape features. The tactical display map displays an enlarged section of the tactical grid map with more detail such as type of unit, detailed landscape, and type of enemy units and is the map on which all moves are made.

Players take turns to move their units, fire at enemies, re-supply fuel and ammo, and call on air support. There are several types of units, each one occupying a grid block. The units being light artillery, light armour, heavy armour, heavy artillery, and supply vehicles. Each type of unit features differing attributes such as gun range, gun strength, defence and mobility which determines how many blocks units can be moved each turn.

Artillery, armour, and supply vehicles can be moved each turn a distance determined by their mobility and fuel level. Movement is activated in the tactical display map by clicking on the unit with the mouse and then again on the desired position.

During each turn the armed units can fire at

enemy units dependent on their gun range, which is from 4 to 11 blocks. With the relatively short amount of fuel and ammunition which can be carried by 'armed' units it is often necessary to re-supply them by moving the supply vehicles adjacent to them.

There are six differing battle scenarios that give each side differing sizes of battalions. Each scenario will vary the game strategy and time spent playing. Even more variety is injected with

the inclusion of a choice between six battlefield maps.

These maps are Rocky Canyon, Jungle Ruins, Desert Dunes, River Meadow, Marshland Bog,

and Archipelagos. These features give the game much more scope and add to the lasting appeal of the game.

A nice feature of the game is that two machines can be connected via modem and the game played from hundred of miles apart. However, I don't think that this concept is as popular in Britain as it is in the States.

Several years ago the 8-bit machines were inundated with this type of game where the emphasis was placed on the strategy gameplay rather than the graphics and sound. The Amiga however doesn't seem to have gathered much support over this side of

the Atlantic for such releases and the Americans have become masters of this type of game.

Operation Com-Bat is the latest of this genre to come to the UK via Electronic Zoo and the Amiga's extra capabilities have been used effectively to offer the variety of scenario that the 8-bits can't offer. It might even be useful to those commanders boiling under the sun in Operation Desert Shield

in the Middle East. Perhaps Saddam Hussain could be persuaded to stake Kuwait on it instead of in a war.....

P.K.

"A nice feature of the game is that two machines can be connected via modem and the game played from hundred of miles apart."



Graphics: 67% Sound: 36% Playability: 88%

Absolute Value: 82% Price £24.99

TOYOTA CELICA GT RALLY

Gremlin

Something of a Celica fan himself, the Ed was excited at the arrival of Gremlin's latest. To his disappointment, he found it didn't include a stage in which you race across town from the designer's to the repro house at 2 am in a desperate attempt to get the next issue out on time. After explaining that an early morning trans-London section may not be missed by the average gamer, I persuaded him to take it out of the bin. As he handed it to me covered in the remnants of last night's kebab, I wished I'd kept my mouth shut.

What you do get is a set of three stages, each of which is separated into ten sections. You can choose to practice any stage, or enter the championship and drive all thirty sections.

The approach is similar to that taken by Mandarin's Lombard RAC Rally. It's all viewed through the driver's eyes with a mix of solid 3D vectors and sprites. Trees, rocks, and in fact any



natural objects on the roadside are taken care of with the sprites. Churches, houses and other buildings use the vectors. Sliding off the road leads to a 20 second penalty, and a false starts are harsher still.

"Moving through a map of the forthcoming section, you can lay down markers along with appropriate comments, such as 'Hard left', 'Easy right' and so on"

So what's new on offer? The most important original feature is the speaking co-driver, who replaces the usual road signs, warning you of all the approaching bends. He's not perfect however,

so you can "program" him before each stage. Moving through a map of the forthcoming section, you can lay down markers along with appropriate comments, such as "Hard left", "Easy right" and so on. During the Scandinavian sections, your windscreen gets snowed up, so the game includes a wiper function, which can be turned on and off when ever you want.

"Celica Rally is the best game of its type, but there's still a long way to go before rally games can seriously rival the likes of Super Hang-On, RVF Honda and Indy 500"

Despite these interesting additions, it still feels like just about every other computer rally game. The handling of the car is slightly improved. Counter-steering works to a degree, and you're not just forced to the outside of a tight bend as you would be in Outrun for example, but there's not much sensation of speed. During the wet and snowy stages, the car slides around too much, forcing you to trundle around the bends at a sedate speed; not exactly a recipe for an adrenalin rush.

Celica Rally is the best game of its type, but there's still a long way to go before rally games can seriously rival the likes of Super Hang-On, RVF Honda and Indy 500. Even so, anyone interested would do well to give it a once over for an alternative slice of race action. *T.H.*



Graphics: 62% Sound: 60% Playability: 67%
Absolute Value: 66% Price £24.95

Strider II

US Gold

US Gold's licensing deal with Capcom has given them the chance to convert some excellent coin-ops. One of the best of these was Strider, recreated on the Amiga by Tiertex in the summer of '89. In a reversal of the normal procedure, Tiertex rather than Capcom have developed the sequel, which is soon to be converted back to coin-op form.

When creating sequels to games, it's common practice to retain or improve the popular features of the original, adding new twists, improving the graphics and so on. It's strange then, to see that Tiertex have done the opposite!

Like its forerunner, Strider II is a multi-directionally scrolling platform game. Strider himself is a cross between Olga Korbet and a samurai warrior. To help you in your world-saving quest, you're armed with a gun and a weird kind of sword, which sends out a flashing arc, killing anything it touches. As for your defences, you can leap over most enemies, but other than that, you'll have to rely on tactics of doing it to them before they do it to you.

For an example of how Tiertex have messed up the game, take a look at the Strider sprite. Rather than keep the excellent sprite from the original game, they've replaced it with an inferior version. The same is true of the enemies, who are either unimpressive humanoids, or "cop-out" robots built from simple blocks and balls. Instead of semi-intelligent attack patterns, the enemies simply run into you. Some of them are armed, and fire at you even before they appear on the screen, and as their bullets jerk towards you at a fair old rate, you'll be lucky to get out of the way in time. If you do you're likely to leap right into the next enemy. There is a way around this, and that's to take the game at a very slow pace, nudging the scrolling along a little at a time, which hardly gets the adrenaline pumping.

"Strider himself is a cross between Olga Korbet and a samurai warrior"

More disappointment comes when you hear the music, which has been taken directly from the first game, as have the sound effects, including that irritating grunt each time you swing your sword.

Strider's scrolling could have been smoother, and seemed a likely candidate for improvement. That of the sequel is appalling. It moves in such big steps that keeping track of the action can become extremely difficult, a situation emphasised by the similarly jerky sprites. Gameplay is hampered further still by the unresponsive



controls, mystery deaths and level designs far less imaginative than those of the original.

Many of these problems stem from slow-running and scruffy program code. Everyone

"It moves in such big steps that keeping track of the action can become extremely difficult"

knows the Amiga can smooth scroll a full-size screen with one arm tied behind its back, and is more than capable of handling a fairly simple platform game without resorting to sluggish controls. I can only assume this is yet another cheap ST port (cheap that is, for the developers). With Amiga games outselling ST titles by a long shot, isn't it time that everyone switched to the Amiga as the lead format? Just think yourself lucky Commodore didn't put a Z80 processor in the Amiga; we'd all be playing port-overs from the Spectrum!

T.H.

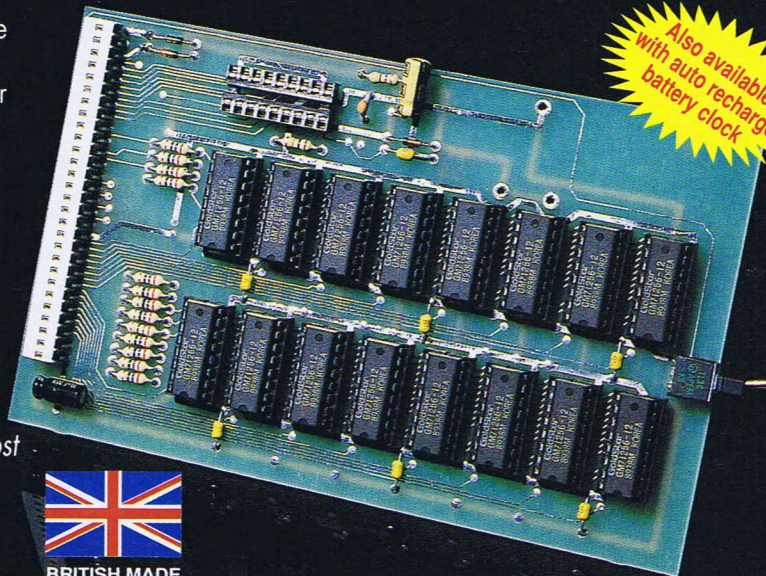


Graphics: 45% Sound: 58% Playability: 40%
Absolute Value: 40% Price £24.95

AMIGA 500 MAMMOTH 1/2 MEG UPGRADE

LATEST DESIGN INCORPORATES 'CHIPMEN' OPTION AT NO EXTRA COST!

- Increases computer memory from normal 1/2 megabyte to 1 megabyte
- Includes disable switch/incorporates high quality silver coated pin connector
- 16 bit technology
- Fit in minutes
- Direct replacement of Commodore A501 expansion
- Includes "CHIPMEM OPTION" - Phone for details
- 12 month warranty
- In stock now!



Also available
with auto recharge
battery clock

£27.00

Price includes VAT and post
and packing

Tel: 0582 491949



Send order with payment to:

WTS ELECTRONICS LTD, Chaul End Lane, Luton, Beds LU4 8EZ



AMIGA REPAIRS JUST £44.95 inc.



- ★ Commodore authorised and registered repair centre
- ★ Over 10 years experience with Commodore computers
- ★ 20 qualified technician engineers at your disposal
- ★ We will undertake to repair your Amiga 500 computer for just £44.95 including parts, labour, VAT and post & packing
- ★ Most computers will be turned around in just 24 hours!
- ★ Prices include full service check, overhaul, soak-test and replacement of power supply unit if necessary
- ★ Repairs to keyboard and disk drive also included (£25 extra if these units are unrepairable and require complete replacements)
- ★ All repairs covered by a 90 day warranty



**Upgrade your Amiga from 512K to 1Mb of memory for just £25.00
SPECIAL EXCLUSIVE OFFER:**

If you submit your computer to ourselves for repair, enclosing this advert along with just an additional £25, we will supply and fit a 512K memory expansion at no extra cost.

How to take advantage of this exceptional offer: simply send or hand deliver your machine to the workshop address detailed right, enclosing payment and this advert and we will do the rest. (If possible please include a daytime telephone number and fault description).

** If you require 24 hour courier to your door, please add £5 else your computer will be sent back by contract parcel post.*

WTS ELECTRONICS LTD

STUDIO MASTER HOUSE

CHAUL END LANE

LUTON, BEDS, LU4 8EZ

Telephone (0582) 491949 - (4 lines)

WTS reserve the right to refuse machines that in our opinion are tampered with, to an extent beyond reasonable repair

Indy 500

Electronic Arts

It stunned MS-Dossers (MS-Dossers? Tramps who sleep in their computers cardboard boxes?) the world over when it was released on the PC, and now it's going to stun you. You too can now take part in America's famous Indianapolis 500 motor race, burn rubber with the best in the business, steal the glory on the final lap, and cause some of the most spectacular pile-ups you'll ever see.

A race around an oval track might sound a bit unexciting compared to the snaking bends of a Formula One circuit. Activision had a go at a similar type of game with *Days of Thunder*, but ended up with a slow-moving race around a small track. *Indy 500*, you'll be pleased to hear, knocks the stuffing out of Activision's offering. If you took our advice, you'll have hung on for *Indy*, and you'll be well rewarded.

"You can try to improve upon your grid placing of 33rd by entering the qualification rounds"

Coming from the States, you'd expect *Indy* to be more of a simulation than an arcade game. That is the case, but unlike most simulations, there's absolutely no shortage of turbo-charged white-knuckle race action. There's no need for a "quickstart" chapter in the manual. Impatient drivers can get straight into the action from the beginning. Select "race" from the menu, and you're immediately transported to the cockpit of your car as it squeals away from the back row of the grid. Packed grandstands on either side, you



tear down the straight to get the best possible line for the first bend. A bit of over-enthusiastic driving and you could find yourself clipping the wheel of an opponent, before spinning out of control, usually to end up off the track on the grass verge.

Indy is so flexible, that as well as catering for the instant thrill seekers, at the other end of the scale, there's ample opportunity for those who like to start at the beginning and do everything properly. Learning to drive in the middle of a

"Select "race" from the menu, and you're immediately transported to the cockpit of your car as it squeals away from the back row of the grid"





hard-fought race can be difficult, so a practice option has been included. You get almost the whole track to yourself, which makes it much easier to try out any new driving techniques, or test different tyres, suspension settings and the like. In the pits you make all sorts of adjustments to your car, including shock absorbers, gear ratios and roll bars. With no right turns on the circuit, Indy cars don't have a differential. Instead, one tyre is bigger than the other, the difference of which you can also alter in the pit. You can try to improve upon your grid placing of 33rd by entering the qualification rounds. A consistent four laps of around 45 seconds each should put you up a couple of places. A nice detail here, is that the stands are now half full as the crowds begin to arrive for the race. Real joystick junkies can go for the whole 500 mile race, but for those of us with a little less staying power, three shortened races are also available. The first of these grants you an indestructible car, but although you can still drive, the computer won't give you a placing at the end if it deems you to have crashed. Crashing is something you find yourself doing a few times every race in the early stages. That is, unless you drive around carefully at 40mph. Even then you'll probably get shunted from behind and put out of the race.



All this would be enough on its own, but there's one feature that gives the game an enormous boost, and that's the action replay. It's limited to 1 meg machines unfortunately, but is brilliantly done. At any time in the race you can call up the last 20 seconds of action on the replay. Seven different views are available. You can watch it all again from the cockpit, from just behind your own car, from above, from the trackside, or from a series of TV cameras which pan and cut from one to the next. Sometimes you'll suddenly spin off the track for no apparent reason. A look at the replay will usually show a car coming up from behind that you didn't spot. Other times you'll be involved in such a suicidal pile up, that you've just got to see it all again from every possible angle!

Together with the replays and the high speed of the graphics, another big point in Indy's favour is the realism. The cars look and move just as they should, including your own. If you find yourself facing the wrong way, after backing up a little to make some space, a stab on the accelerator with a full lock on the steering spins the car round just like you've seen it done on TV. What a change it makes from having to drive something with the turning circle of an ocean liner.

"Other times you'll be involved in such a suicidal pile up, that you've just got to see it all again from every possible angle!"

The "real world" generated by the 3D vector graphics is very convincing. You have total freedom within the confines of the track. If you fancy, you can drive the wrong way, reverse around the track, stop broadside across the home straight, or use the pitlane as an alternative route if the traffic's heavy. Rather than the usual engine drone, you get real life engine sounds from your own and the rest of the cars. Each car seems to have its own little brain, overtaking, dodging crashed cars and so on. At the end of the race, all those left running trundle into their position in the pitlane, carefully backing into their parking spaces to the sound of their humming engines. Indy 500 is the best racing game to have appeared for ages, tussling with Stunt Car Racer for the title of best racing simulation available for the Amiga, and shouldn't be missed by any Amiga owning speedfreak.

T.H.

Graphics: 95% Sound: 93% Playability: 91%
Absolute Value: 93% Price £24.95

ATF II

Digital Integration

From the publishers of F16 Combat Pilot comes the follow up to the original C64 game called Advanced Tactical Fighter which was released during 1988. Speaking as a flight-sim fanatic, I must say that ATF II bears no resemblance to anything like a serious simulation.

This is a game, albeit a game which requires lightning fast reactions and a bit of mind blowing strategy but still is a game, not a simulation. There are no flight theories to get to grips with here and the user could fly the plane without any practical knowledge, just open the throttle, pull back the stick, and you're off.

After a security code check from a page in the manual, the opening screen gives you a choice of demo mode, high score table, music/sound effects and allows you choose your skill level. There are eight levels, each, needless to say, making your task harder and being blown up even easier.



A balance of power screen shows both the enemies and your own war gains or losses as you progress. The higher skill levels start you off in a situation which makes winning the war more difficult as you have many more targets to get before your enemy gets yours.

ATF sets out your missions for you in their briefing room. There's a cute animated screen with a couple of guys working on their consoles. Then it's on to another animated screen when you can take on fuel and weapons. After that its time to grab yourself a piece of the action where you are shown, in third perspective, sitting on the end of the runway ready for takeoff.

At the bottom of the screen there are three VDU screens that contain all the target details. With clever use of switching these displays you will be able to pick off targets one by one and here is where the strategy comes in. Quick changes of

weapon selection combined with aerobatic defence tactics against the enemy should see you through each mission with ease.

"There are no flight theories to get to grips with here and the user could fly the plane without any practical knowledge, just open the throttle, pull back the stick, and you're off."

The game becomes very hectic and extremely addictive. Your ATF has the ability to fly very close to the ground and will follow the terrain automatically when selected. A map of the area on the VDU shows the target and enemy plane positions. After a successful mission you can select the autopilot, you are returned to base for a safe landing, hopefully!



After the mission debriefing it's on to the next mission. You have loads to go at. Enemy bases, factories, tanks, submarines, ships, fuel dumps, communications and artillery all ready for the kill.

Digital Integration have made a good job of an arcade game with ATF II but if you want simulation stimulation then forget it. For the gamer ATF II is quite a challenge and has some nice graphics coupled with a dash of addictiveness to keep you interested for some time.

B.C.

Graphics: 71% Sound: 60% Playability: 70%
Absolute Value: 69% Price £24.95

BEST SELLING AMIGA BOOKS

AMIGA DOS INSIDE & OUT

£16.95

An in-depth guide to AmigaDOS and the CLI. Covers the insides of AmigaDOS from internal design up to practical applications. Versions 1.2 and 1.3 are covered and this revised edition also includes AmigaDOS 2.0

AMIGA C FOR BEGINNERS

£16.95

An introductory guide for the Amiga user that wishes to learn this popular language without a lot of technical jargon. Describes the C library routines and use of the most popular C compilers. Lots of programming examples.

AMIGA DESKTOP VIDEO GUIDE

£16.95

This is a book for everyone who wants to use the Amiga for video. You'll find information on video basics, video-tape equipment, video/Amiga interfaces, artwork and more.

AMIGA SYSTEM PROGRAMMERS GUIDE

£29.95

A comprehensive guide to the internal workings of your Amiga. Explains in detail the Amiga chips and how to access them, EXEC structures, I/O requests, multitasking functions, interrupts, Devices, DOS libraries and much more.

AMIGA PRINTERS INSIDE & OUT

new £29.95

A comprehensive guide with easy to follow examples and simple explanations to help you use your printer more effectively. Learn AmigaDOS commands for printer control and printing tips and tricks from the experts. Includes a companion diskette with essential printer utilities.

MAKING MUSIC ON THE AMIGA

new £29.95

The Amiga has wonderful music talents. This book show you how to take advantage of those capabilities. It starts with the fundamentals of music and progresses to the details of using software such as Music Construction Set, Aegis/Oxxi and AudioMaster and how to construct your own MIDI interface. Includes companion diskette containing lots of music examples.

MAPPING THE AMIGA (Compute!)

£19.95

This reference guide includes a full description of every hardware register and an element by element breakdown of each Amiga system structure. There is a complete listing of library functions with syntax given in C, machine language and Modula2. Examples are given for creating blitter routines, audio programs and custom Copper lists.

OTHER ABACUS BOOKS

Amiga for Beginners	£12.95	Amiga BASIC Inside & Out	£18.95
Amiga Tricks & Tips	£14.95	More Tricks & Tips	£14.95
Amiga Machine language	£14.95	Amiga Disk Drives I & O	£24.95
Advanced System Prog. Guide	£29.95	Amiga graphics In & Out	£29.95
C For Advanced programmers	£29.95	Amiga 3D Graphics in BASIC	£16.95
AmigaDOS Quick Ref. Guide	£ 8.95	Optional diskettes	£ 9.95

All the above books are available post free directly from DTBS. The books are also available from most good computer dealers and booksellers, who should be able to supply at the above prices. If your dealer charges higher prices then he is probably buying his stock from the wrong distributor. Show him this advert and advise him to contact DTBS.

SPECIAL NEW YEAR OFFERS

Amiga for Beginners + Amiga BASIC Inside & Out	£30
Amiga Tricks & Tips + More Tricks & Tips	£25
System Prog. Guide. + Advanced System Prog. Guide	£50
Graphic Inside & Out + 3D Graphics in BASIC	£40
AmigaDOS Inside & Out + AmigaDOS Quick Ref. Guide	£23
C For Beginners + C For Advanced programmers	£40
Optional Diskettes (with books)	£5

Add 10% postage for European orders and worldwide surface mail
Add 30% for airmail outside Europe. Dealer enquiries welcome

 **commodore**

A1500 IN STOCK!


Prices include VAT, delivery & warranty. Please add £15 for overnight delivery. All systems are tested before despatch. On-site maintenance options available.

Amiga A3000-25/100, 6MB	£3145
Amiga A3000-25/40, 3MB	£2895
Amiga B2000 latest UK model	£845
Amiga A1500 as above, plus 2nd floppy, DPaint3, Works Platinum etc	£945
Amiga B2000 with A2091 40MB Quantum 11ms autoboot hard disk	£1295
Amiga B2000 with A2286 PC-AT bridge board & 5 1/4" disk drive	£1445

■■■ B2000 + XT Bridge Board + 20MB autoboot hard disk £1295!

PERIPHERALS


A2620 68020 Card + 2MB 32-bit	£995
A2286 PC-AT board & 5 1/4" drive	£645
A2088 PC-XT board & 5 1/4" drive	£349
C2058 8MB Board, 2MB installed	£224
RAM for above, per 2MB ...	£104
RAM for A3000, all types ...	£495
A2091 + 40MB 11ms Quantum	£845
A2091 + 105MB 11ms Quantum	£845
RAM for A2091, per MB ...	£48
Quantum ProDrive 40MB 11ms	£349
Quantum ProDrive 100MB 11ms	£695
Quantum ProDrive 170MB 11ms	£995

Amiga A500 v1.3 complete ...	£349
KCS PC Power Board	£299
RAM for A500, per MB ...	£48
Supra Modem 300-2400 baud	£159
Supra 2400z1 internal modem	£159
A1084SD colour stereo monitor	£259
14" MultiSync monitor 1024x768	£475
NEW! A2320 de-interlacer	£115
CBM 1270 Inkjet 192 dpi 160 cps	£225
HP DeskJet 500 inkjet, 300 dpi	£495
HP PaintJet colour inkjet 180 dpi	£925
Rendale 8802 Genlock	£199
Rendale Pro Genlock	£575
SketchMaster 18x12 dwg. tablet, 1000 lpi, with stylus & 4-button cursor	£595
FrameGrabber all colour modes, overscan, up to 640x400 resolution	£549

■■■ B2000 + XT Bridge Board + 40MB autoboot hard disk £1495!

Why not enjoy the free Teletext databases with the MicroText Teletext adaptor... Fully programmable, with Fastext facility, instant access to last 16 pages, double page view, telesoftware loader, auto-start/background operation... Pages can spoken, printed as ASCII or graphics, saved as ASCII or IFF files... And it turns your 1081/1084/8833 monitor into a digital TV! Available now for only £139!

TELETEXT


■■■ Amstrad FX9600AT Fax + Printer + Copier + Scanner £115 off!

PRODUCTIVITY


■ SuperBase Personal	Handles data & graphics, with easy VCR style controls	24.95
■ SuperBase Personal 2	Relational database power, without programming!	39.95
■ "Professional v3	"The Rolls-Royce of Amiga databases" (NCE)	154.95
■ SuperPlan	Pro spreadsheet with business graphics, time planner	49.95
■ C64 Emulator v2	Don't throw your C64 software away!	49.95
■ Doctor Ami	Guru stopper... disables bad disk blocks and RAM!	39.95
■ Excellence 2	New improved version... Word Perfect with graphics!	129.95
■ Pagestream 2	With major new features incl. Agfa/Adobe fonts	139.95
■ Professional Draw 2	Now much faster, with auto-trace, curved text & more...	89.95
■ Professional Page v1.3	Includes WP, Desktop, colour separations, CAD	139.95
■ CG Outline Fonts	35 Agfa CG fonts for ProPage, ProDraw 2, PageSetter 2	89.95
■ Gold Disk Type	Choice of 4 sets of 3 Agfa CG fonts, per set ...	39.95
■ Professional Page Templates	£39.95 ■ Works Platinum Edition	99.95
■ PageSetter 2	59.95 ■ System Programmer's Guide	24.95
■ Pen Pal	79.95 ■ Amiga Logo	39.95

■■■ PAGESTREAM 2 PRODRAW 2 EXCELLENCE 2... In stock now!

CREATIVITY


	■ Walt Disney Animation Studio	99.95	
■ Introcad Plus	Powerful new version of popular CAD program	79.95	
■ Broadcast Titrer 2	Real broadcast quality titling with 4-level anti-aliasing	179.95	
■ Pro Video Post	The ultimate in video presentation, titling & effects	209.95	
■ Pro Video font sets	Choice of 5 sets of 4 anti-aliased fonts, per set...	89.95	
■ TV-Text Professional	Latest full-feature video titler, includes Zuma fonts	89.95	
■ TV-Show v2.02	Video presentation, special effects & transitions	54.95	
■ Video Effects 3D v1.2a	Smooth playback, unlimited 3D effect combinations	129.95	
■ 3D Professional	£259.95	■ RGB Splitter	69.95
■ Turbo Silver	89.95	■ ColourPic Digitiser	475.00
■ The Art Department	59.95	■ SuperPic Genlock/Digitiser	595.00

■■■ IF YOU WANT IT TOMORROW... CALL US TODAY! ON 081-546-7256 ■■■

Prices are POST FREE & include VAT. Order by phone with your credit card, or send cheque/PO or your credit card number. We welcome official orders. Software sent same-day by 1st Class post, but please allow five days for hardware delivery, unless overnight. Prices subject to availability. Ref. A76



Calco Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QT. TEL 081-546-7256



DTBS (Dept)
18 Norwich Avenue, Rochdale, Lancs OL11 5JZ
Access/Visa Orders Accepted



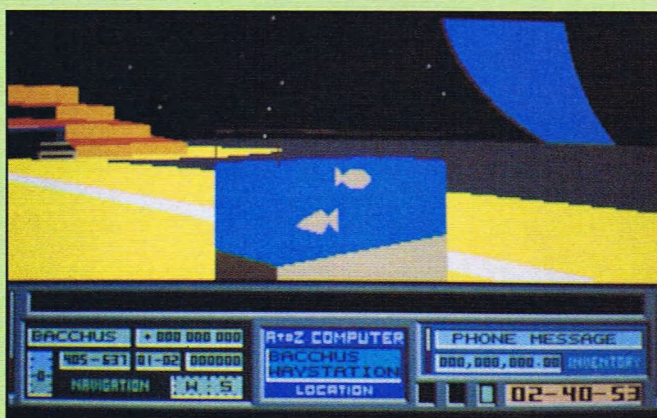
SHORT REPORTS

Damocles Mission Disk 1

Novagen

What's this then? Novagen jumping on the mission disk bandwagon? Some will see it that way, but it was in fact they who introduced the idea, back in the old days with their Second City add-on for Mercenary. The first Damocles Mission Disk gives you four new twists in the original scenario. These are loaded into the main game as if they were saved positions. Depending on the mission, various objects are placed in awkward positions, and your goal is slightly altered. Anyone who enjoyed and completed the original would do well to pick up a copy.

Price: £9.99 (requires the Damocles game disk to run)



Damocles Mission

Finale

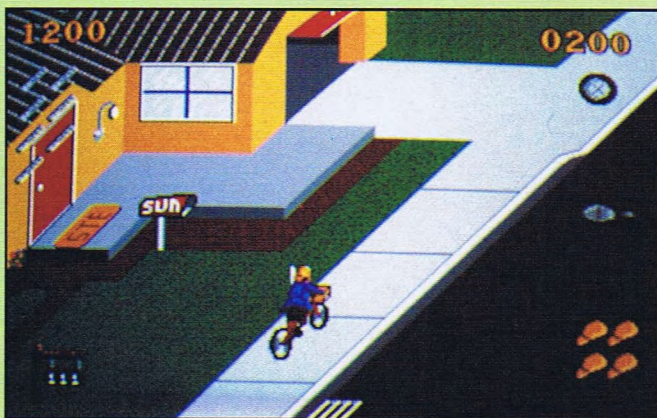
Elite

It's the compilation season, but so far there haven't been too many worthwhile bundles. Finale is definitely one of the best around, and includes four varied arcade games from Elite's back catalogue.

Paperboy was a big coin-op hit in the mid-eighties, but only made it to the Amiga about 18 months ago. You control a paperboy on his rounds through an American suburb. Deliver to all your subscribers and you'll keep their business. Drum up new business by wrecking the houses of non-subscribers. Smooth scrolling and humorous graphics make it a lot of fun in short periods.

Overlander is the only non-licensed game in the package, and takes its inspiration from Atari's Roadblasters coin-op. A traditional OutRun game format is spruced up with rocket launchers and atomic bombs. Unfortunately the gameplay doesn't quite match the high technical standards.

Ghosts n Goblins is a very accurate conversion of the classic coin-op. Arthur the Knight is the hero, who battles through six levels of spooky platform action, from the graveyard, through the ice palace,



Finale

across the burning rope bridge, to the lair of the devil himself. The highlight of the collection.

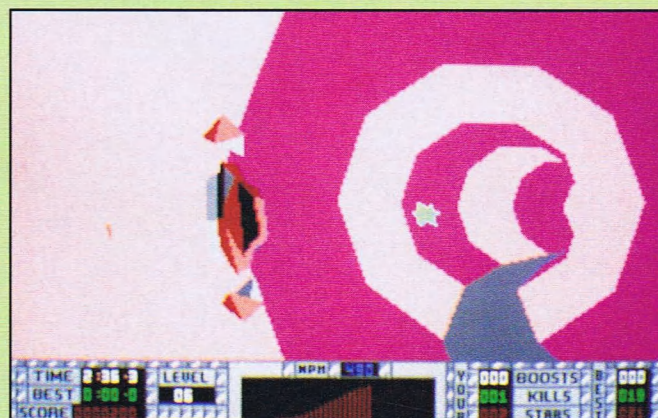
Space Harrier received very little attention when it arrived on the Amiga, but is an excellent shoot 'em up all the same. It's very nearly as smooth and pacy as the coin-op, with massive 3D sprites whizzing in and out of the screen. The overscanned screen rounds it all off in spectacular style.

All four games display expert technical standards, which in most cases gives a big boost to the gameplay. This along with plenty of variety in the games makes it great value.

Price: £24.95

S.T.U.N. Runner

Domark



STUN Runner

Last year Domark did quite well in the battle of the "winter biggies", with Hard Drivin' putting up a strong challenge against Op Thunderbolt, Turbo Outrun and Chase HQ. The follow up, S.T.U.N. Runner, is far less exciting in both the coin-op and the Amiga versions.

It's another 3D vector graphic affair, this time set in the future. You control a ship skimming down a series of artificial bob sleigh runs, shooting indistinct vehicles, occasionally getting a boost from one of the few turbo panels. The coin-op was pretty speedy, so at least it was fun for a short while. The Amiga version runs at around four frames per second in general, and fails completely to put across any sensation of speed. The sluggish controls and simplistic gameplay seal its coffin with six inch nails.

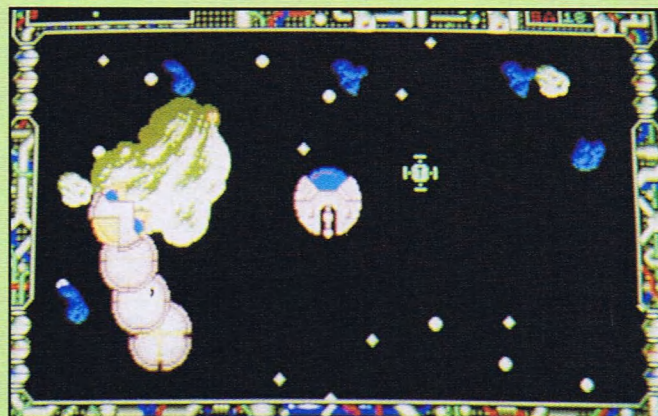
Rating: 35%

Price: £24.95

Cosmic Pirate

Action 16

Originally released through Palace at full price, Cosmic Pirate is very slick shoot 'em up with quite a few original features. You play a



Cosmic Pirate

pirate of the spaceways, employed by a kind of interstellar mafia. Although your ship is fairly small, it can dock with any ships you catch, and take them back to base to be stripped down. Some of the ships are a lot bigger than the screen itself, so towing them home can be a bit of a handful. A few sub-games add a bit more variety to the whole thing.

The sprites and backgrounds are excellent, and all move around very smoothly. The levels are sprinkled with some clever special effects, and the soundtrack's well up to scratch too. It was a great game at the original price. For a fiver you can't go wrong.

Rating: 90%

Price: £4.99

Maya

Action 16

Maya is another of those typically strange French games. Programmed by the team responsible for Targhan, it's an arcade adventure set in the jungles of Central America. Exactly what you're supposed to be doing isn't made very clear in the instructions. A report of a deceased scientist who was on the trail of some Aztec mystery,



Maya.

along with a poem-cum-riddle is all you have to go on.

It turns out to be a combination of 3D jeep driving stages, trading, exploring and a spot of fisticuffs. The potential is there for an involving adventure, but it's let down by the rather gutless gameplay. Still, it's not bad for the price.

Rating: 70%

Price: £4.99

Rotor

Action 16

Taking inspiration from the likes of Asteroids, Thrust, Gravitar and company, Rotor has a very similar look and feel to Cosmic Pirate. You're under orders to fly into a series of caverns and recover various commodities. Hostile gun emplacements have to be avoided or destroyed, and contact with anything is fatal.

Although Rotor is very neatly presented, it's not as good as it could be. It's all a bit too sluggish to make for an exciting shoot 'em up, with fiddly movements taking priority over quick reactions. Even so, it's



Rotor.

one of the best of the limited range of Amiga Thrust variants.

Rating: 78%

Price: £4.99

Hostages

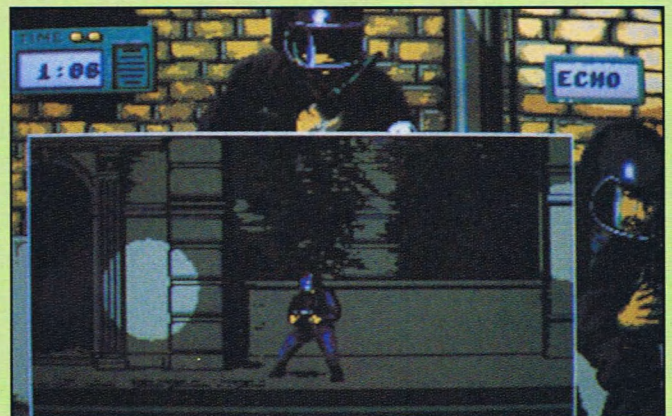
Action 16

With an embassy under siege, it's up to you as controller of an SAS style anti-terrorist team to sort things out. Four sections chart your progress from the surrounding streets to the final bloodbath. Part one has you positioning your men around the embassy, dodging searchlights and ducking into doorways for cover. Next it's time to get the rest of your team abseiling down the walls and in through the windows, with cover from one of your marksmen. Once you're inside, it's a 3D shoot out as you battle with the terrorists and lead the hostages to safety.

Variety is plentiful, and the original idea and execution makes for an enjoyable little escapade. Ominously coloured graphics give it a suitable atmosphere, rounding off a playable if not outstanding game.

Rating: 80%

Price: £4.99



Hostages.

The Ultimate Ride

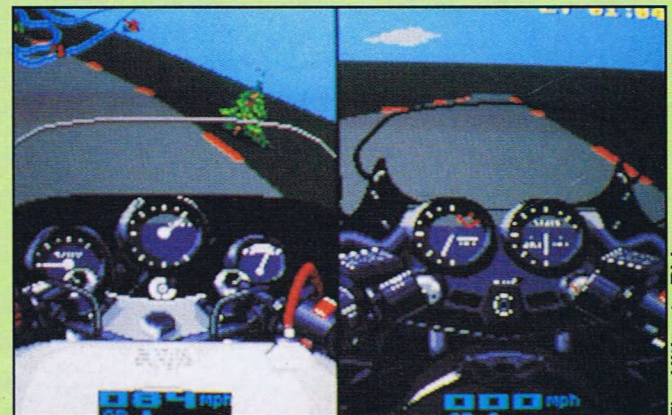
Mindscape

The Ultimate Ride has been quite aptly named; it's enough to put you off bike racing sims for life! Hopes were high for the game, as it comes from the programmers of Fiendish Freddy and Infiltrator. That enthusiasm was substantially dampened by the time the seemingly endless options screens had made an appearance.

Eventually you'll find yourself on the grid of the first track. An official waves the flag, and you're off. As the first bend approaches, you discover the appalling handling of the bike. You could reasonably expect to take most of the corners in third gear, but in fact you're forced to slow right down and take almost every bend in first gear. The bike feels like both its wheels are buckled, wobbling around all over the place. The tracks themselves are very bare, and what scenery has been included is very blocky. Give it a miss.

Rating: 30%

Price: £24.95



The Ultimate Ride.

NINJA REMIX

System 3

Anyone who played *The Last Ninja II* and was somewhat disappointed, may have been wondering if this was the start of a decline for the highly reputed System 3 team. Although the System 3 logo was all over the packaging, it turns out that they didn't actually have anything to do with the programming of the game. Previous commitments meant that their distributor, Activision, were owed another ninja game, but System 3 had plans to break off the relationship. Activision were given the design, and left to produce the game themselves. Now they've made the break, Mark Cale's merry band have released the "real" Amiga *Last Ninja*.

"There are plenty of puzzles and problems to be discovered by newcomers to the game"

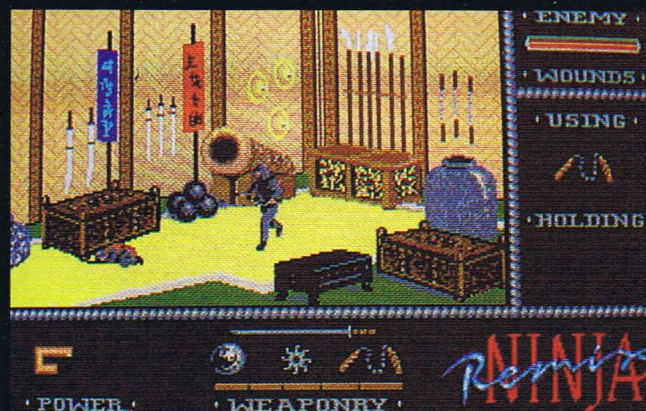
Although the title suggests a combination and reworking of previous ninja games, it is actually a conversion of the original *Last Ninja* released on the 64 back in 1987. As before, it's a game of six levels, each of which is a maze of isometric 3D screens.

The wilderness is the setting for the first level. A Chinese dragon guards the exit to the next, but before you get to meet him, you'll have to kill or seriously wound a number of oriental warriors. Starting out unarmed, you initially only have two moves available. Kicking and punching the guards

"Kicking and punching the guards into an early grave isn't too difficult, but life easier once you pick up some of the weapons left lying around."

into an early grave isn't too difficult, but life becomes even easier once you pick up some of the weapons left lying around. A sword thrust into the gut of an enemy tends to be a lot more effective than a slap round the face.

Fans of the original will probably find themselves breezing through level one, as it's almost a carbon copy of the 64 game; it even "feels" the same. As a fan myself, I found the following two or three levels fairly easy going, with only the second half really beginning to tax either the brain cells or reactions. That's not to say the game is too easy. There are plenty of puzzles and problems to be discovered by newcomers to the game. Although the levels aren't



enormous, they are all well detailed, and have kept that solid look. With six of these, there's a fairly big game for your money, and the wide variety of locations makes for an interesting adventure.

Even so, more could have been done with game. The screen is still reduced by an unnecessarily large status area, and the music sounds exactly like that of the 64 game. In effect, this is the 64 game. That's fine, but under the new name, it's bound to attract followers of the ninja series, who may well be disappointed to get it home and find they've just bought the same game they did three years ago, but paid #25 for it this time.

However, anyone new to the game is almost guaranteed many hours of absorbing arcade adventuring. As the ninja series is still to be cloned, *Ninja Remix* is a unique, original and very colourful mix of fisticuffs and brainwork that deserves to do well.

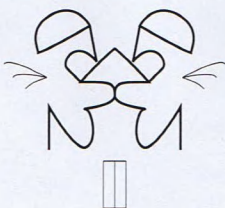
T.H.



Graphics: 80% Sound: 62% Playability: 85%

Absolute Value: 81% Price £24.95

N.U.R.D. Software
6 CHAUCER COURT
WENDOVER RD
STAINES
MIDDX TW18 3DP



Mon-Sat

Mon-Fri 0900-1600

0784 454214

081 890 3296

This is a message from the N° 1 NURD

Hi, welcome to the world of Nurd

All you have to do is forget the rest,
 because our top twenty is the best, so
 send your money to invest,
 for *action*, *skill*, or *adventure* quest.

The NURDS top twenty in no order

Please ring for availability to save disappointment

1	Powermonger	£18.99	11	Indy 500	£17.99
2	F-19	£18.99	12	Lotus Turbo Esprit	£16.99
3	Teenage Turtles	£16.99	13	Flight of Intruder	£19.99
4	Days of Thunder	£18.99	14	Golden Axe	£17.99
5	Wings (1 Meg)	£19.99	15	Immortal	£16.99
6	Cadaver	£16.99	16	Wolfpack	£18.99
7	Supremacy	£19.90	17	Simulcra	£16.99
8	Stun Runner	£17.99	18	Strider II	£16.99
9	Lemmings	£16.99	19	Buck Rogers	£16.99
10	Killing Game Show	£16.99	20	Obitus	£23.99



Credit card hotline **0784 454214**



Please make cheques/P.O. payable to NURD Software
 Same day despatch if in stock
 So phone and chat to the NURD now! We are here to help
 Amig 500 and ST at competitive prices

AMIGA VIDEO INTERFACES

Syntronix Systems, Burlington House, Prime Industrial Park, Shaftesbury Street, Derby, DE3 8YB.
 Tel: 0332 298422/0831 470555 (Mobile)

WE HAVE THE ANSWER !!!!

If you are using the Amiga for *animation*, *Graphics* or *Video DTP*,
 our special video products *will* be of importance to you



NEW SYNTRONIX AMIGA/SUPER-VHS RGB RECORDING INTERFACE

Permits hi-res recording of AMIGAS RGB signals for superior quality onto SUPER-VHS/RGB formats
 Cross-colour dot interference eliminated with crisp unbelievable graphic images recorded on your compatible VCR.

WHY WASTE MONEY ON GEN-LOCKS??? only £249.95 + VAT

**** CALL FOR DEMO TAPES ****



NEW SYNTRONIX AMIGA/SUPER-VHS RGB RECORD/PLAYBACK INTERFACE

As shown above with S-VHS replay/review capability on *existing* Amiga monitor

No need for special TV sets, etc! Call for details



NEW SYNTRONIX PROFESSIONAL RGB SPLITTER

Only £179.95 Limited special offer with this advert!!



DIGIVIEW (Latest version) PLUS AN RGB SPLITTER

both products £169.95!!!! + VAT Limited numbers so hurry!



NEW SYNTRONIX AMIGA EDITING SYSTEM

Brings the power of a professional editing studio to your Amiga, suitable for most domestic VCR's.

This system that beats all other systems!

CALL THE SYNTRONIX HOTLINE NOW! 0332 - 298422/0831 470555

ADVENTURE NOW!

'Always keep your droids powered up' advises Andy Moss. But it is not a reference to Anita Sinclair or even Chaos at Mirrorsoft etc..

As promised last month, reviews this issue are Heroes Quest and Captive, along with Omnicron Conspiracy from Mirrorsoft. But first, some hot news...

NEWSDESK

WONDERLAND AMIGA FINISHED



Wonderland. ▲ ▼



As you can see from these exclusive Amiga screenshots, Magnetic Scrolls latest multi window blockbuster WONDERLAND is looking very tasty indeed. It is the largest and most ambitious project that the company has ever undertaken, and boss Anita Sinclair purrs, 'From the technical point of view, people simply are not going to believe what we have done'. Bullish words indeed, but when you analyse just what this new system is capable of, then you get to realise that Anita's words are not merely PR speak (They never are! Ed). At the heart of the program lies a full multi-tasking mouse-driven windowing system with drop down windows. All the windows can be resized and



Wonderland.

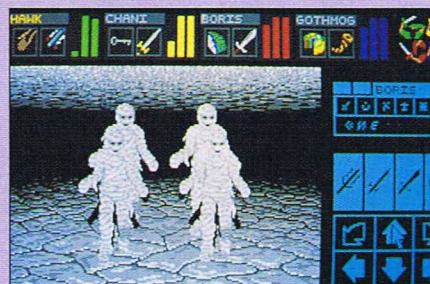
moved anywhere on screen, and include icon-based inventory and object lists and a compass amongst others. You can drag objects in and out of them, put graphic animations into them, and then control the sprites independently using mouse or joystick control, even change the form and functions of the windows themselves to suit your mood. The graphics windows pop up and many feature animation that dovetails with events in the story. There is the usual text window, with changeable fonts, auto mapping, a tree structured help system, great music and for the non typists among you, an object/ icon command system. Author David Bishop, who incidentally is the adventure software development manager at Virgin, said to me recently that this game system will change the format of computer adventuring for ever.

Personally, I cannot wait to get a copy, which has been promised for next issue.

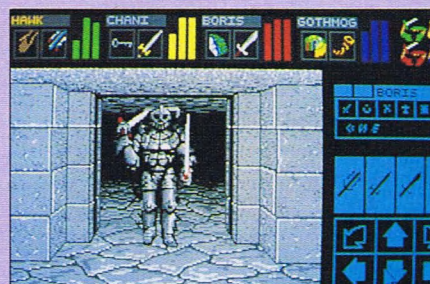
CHAOS AT MIRRORSOFT

The long awaited sequel to Dungeon Master is at last nearing completion. CHAOS STRIKES BACK continues in the

same vein as DM, with a new collection of nasties but includes a character portrait editor so now you can change the appearance of your party.



Chaos Strikes Back. ▲ ▼



Also BLADE WARRIOR which was pre-viewed to me way back last year is finally ready to be let loose on the outside world. Based around a traditional D and D scenario of hero versus evil, the game carries some stunning visuals of multi frame silhouette, that owe allegiance to the programmers backgrounds in film animation. One to look out for.

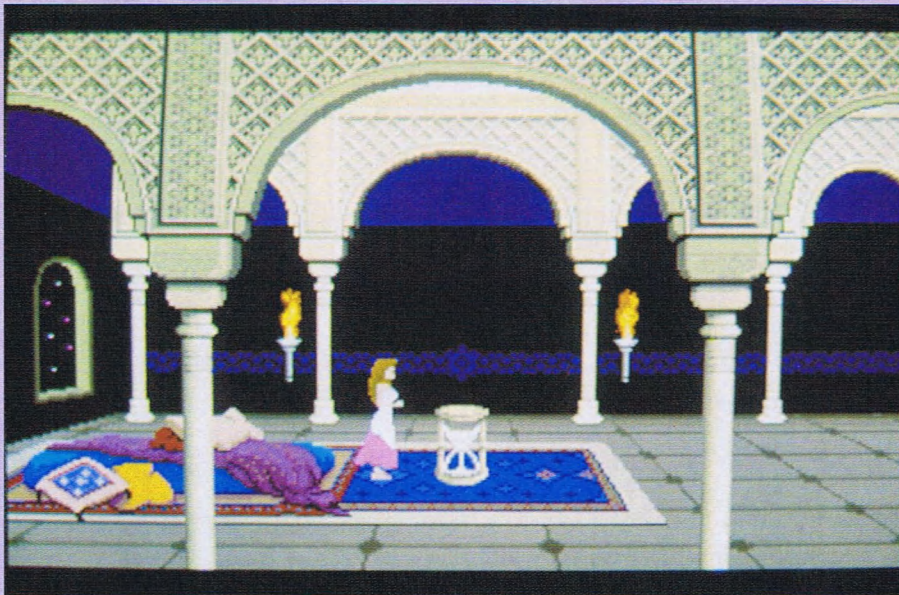
SIERRA AGAIN

You just can't veer a good company down can you. As if we have not had enough of Sierra with so many good games out at the moment, along comes news of FIVE MORE for this year!

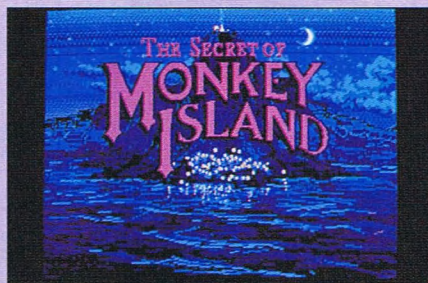
KEEPING UP WITH THE JONES' is based on a board game of real life situations, getting a job to pay for the bills, get a better education to get a better job, invest money, even get mugged! You can play with three other friends or just against the computer, to be the first player to accomplish your real life goals. HERO'S QUEST II is the second in a series of four, this time set in the burning deserts of Arabia. Following your leaving the now peaceful town of Spielburg on a flying carpet in QUEST I you now travel to the magical Arabian city of Shapier. There you will discover the dark mirror image of gentle Shapier, the cursed city of Rasier. What are the secrets of the twin cities? Only a hero can find out. KING'S QUEST V heralds a new graphic style for Sierra's Amiga games, using airbrushing and super smooth animation, the games are looking more and more like Hollywood movies. You again play King Graham in the biggest quest to date with over 10 megabytes of game data and hours of digitised speech. SPACE QUEST IV The Time Rippers brings our friend Roger Wilco back. The last time around, I raved about the game, with its original soundtrack written by members of Supertramp, and its great humour, and devious puzzles. This time, Roger gets hijacked by the Sequel Police on his way home to planet Xenon, and is once again embroiled in an interstellar space romp. Finally, RISE OF THE DRAGON puts you into the 21st century as a private eye detective roaming the city streets to uncover some deadly crimes. Set in real time, you use a point and click interface that involves no typing at all. Sierra have just sent me a video of all these latest products, so I can see first hand how the games are developing. More about that next month.

ARE YOU A PERSIAN PRINCE?

Domark leap onto the fantasy bandwagon with PRINCE OF PERSIA, a game of evil and sexual deviance. Well, at least the bad guy is, and he is about to capture a beautiful princess, unless of course you can stop him. Starting in the dungeons, you have to make your way up through the



Prince of Persia. ▲ ▼



The Secret of Monkey Island. ▲ ▼

palace to the tower where dear old princess is held. Lots of puzzles are promised, along with some great animation.

US GOLD STILL MONKEYING AROUND

US GOLD/Lucasfilms follow up to the Indie games is to be THE SECRET OF MONKEY ISLAND, full of rich graphical quality using different 'camera angles' Monkey runs the Lucasfilm tried and tested route of puzzle and humour in a romp set in the swashbuckling 1600's. As well as solving problems with objects, there are a number of puzzles using funny dialogue, as Ron Gilbert the games designer says 'The one liners are more lethal than the the bad guys!' Due out next month.

Continued on page 98



Murders in Space

Infogrames

The French team at Infogrames have at last finished the sequel to their earlier successful adventure, *Murders in Venice*, and it has proved to be well worth the wait.

Murders in Space takes you forward in time to the year 2005 where you have been chosen to investigate an assassination attempt on the Commander of the Orbital Space Station "Pegasus". The reason you have been picked is because of your reputation in prior investigative researches, (Do they mean me?).

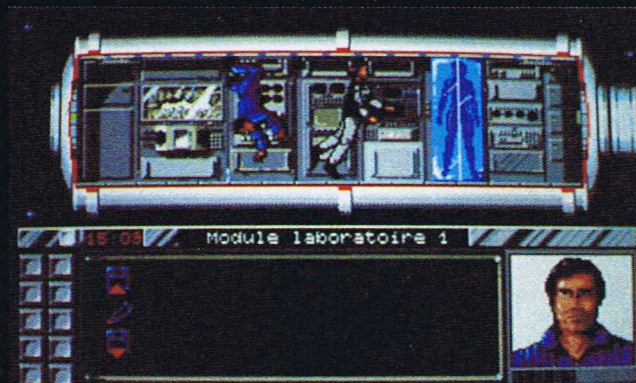
The adventure begins with the docking of your space shuttle to the Pegasus Orbital Station. For technical reasons you must return to Earth the following day with one of the astronauts who is returning back home after his tour of duty, giving you only 24 hours to find the culprit.

"Infogrames have turned what seems at first a simple adventure into a very complex set of puzzles"

On the face of it, your task would seem to be quite simple, as the Orbiter only has a crew of eight. The small internal size helps as well, apart from the extravehicular activity module (EVA), which can take you outside the station, inside the station there are just seven modules to explore plus the docked shuttle.

The game controls are mainly through the use of the mouse, moving, pointing and clicking interactions. Getting yourself around the station is simple enough in the weightless conditions of space. You will have to be discreet, however, as there is great danger in store if some of the crew discovered that you were investigating the assassination attempt.

The main aim of the game becomes more and more difficult, however, as events on board make things seem impossible. There are several obsta-



cles to overcome, not forgetting your 24hr time limit, each crew member has a different nationality and will not be alone or available for interrogation until certain times and if someone should be killed you will have to hide their body.

You have games within the game to solve as during your investigation, you should use the on-board materials and experiments. Discovering how devices work is part of the game. You can utilize the EVA module to explore the outside environment, there is also a versatile manipulat-

"Each crew member has a different nationality and will not be alone or available for interrogation until certain times"

ing arm allowing mixing of substances in test tubes for experiments, there is use of a telescope and a cryogenic life support system.

The game graphics are what I consider to be satisfactory, game sound, where applicable, again only satisfactory. What makes this game good are the intriguing puzzles, just when you think you have solved one, other circumstances create another problem.

I loved the packaging, the metallic silver box, which includes some helpful clues and a sealed foil packet of "space food", which, when opened, gives you another surprise.

Infogrames have turned what seems at first a simple adventure into a very complex set of puzzles that will take several plays to successfully solve. It will be a long time before I can complete this futuristic frolic in space. Happy investigating.

B.C



Graphics: 50% Sound: 50% Playability: 60%
Absolute Value: 60% Price £24.95

U.K. GAMES CHART

Game	Company	Last Month	Rating	Price
1. Teenage Mutant Ninja Turtles	Microprose	(-)	N/A	£29.99
2. F-19 Stealth Fighter	Microprose	(1)	78%	£29.99
3. Cadaver	Mirrorsoft	(3)	89%	£24.95
4. Indy 500	Electronic Arts	(6)	93%	£24.95
5. Lotus Esprit Turbo Challenge	Gremlin	(2)	86%	£24.95
		(-)	87%	£24.95
6. Kick Off 2	Anco	(4)	97%	£24.95
7. Powermonger	Electronic Arts	(NE)	82%	£24.95
8. Rick Dangerous 2	Microprose	(10)	89%	£24.95
9. Team Yankee	Empire	(5)	95%	£24.95
10. Shadow Warriors	Ocean	(9)	90%	£24.95

NB We would have reviewed 'Turtles' for this issue, but apparently, though it was in the shops all over the country, Mirrorsoft could not find a single one for a review copy. We only remember that happening once before when a certain 'Outrun' could not be reviewed before it hit Number One in the Christmas charts – with good reason it seems for the negative reviews it received after thousands had bought it

PAZAZ!

The one stop
Amiga shop in
Scotland

Everything for your Amiga's at real sexy prices!

midi/modems/video/scanners/printers/monitors/disk drives/ram/software & books

A500 Packs - £365
A1500 Pack - £1099
B2000 - £980
A3000's - Ring
0.5Mb Ram - £39
1.5Mb Ram - £135
3.5" Ext Drive - £59

Prices include Vat and Delivery (UK)

1084DS Monitor
-£245
Swift 9 Printer
-£199
Swift 24 Printer
-£299

Add £30 for colour upgrade

Try our 24 Hours Viewdata Bulletin Board on 0383 620259.
Browse through our catalogue and order direct with credit card

**Ring for quotes
on repairs**



Pazaz Viewdata Systems
14 DOUGLAS STREET
DUNFERMLINE,
FIFE, SCOTLAND
KY12 73B
0383 620102

**We OPEN
9-6
MON - SAT**

AUI-SPELL

part 2

In this second instalment Paul Overaa gets to grips with developing and testing the word separation routine for the AUI-SPELL spelling checker project

This month we're going to look at the problem of isolating words from a piece of text. We have decided, at least for initial trials, to use a simple definition - a 'word' is any group of upper/lower case letters delimited by any other character. The current objective is therefore to create some code that will allow words to be stripped from a piece of text.

The preliminary coding will be done by creating a collection of separate units. The end result of this instalment is a CLI program which can, given the name of a textfile, provide a list of the words present in the file. Why have I opted for this fragmented approach? The main reason is that it allows me to explain and test various sections in comparative isolation. Another, perhaps less important, benefit is that some handy utilities can be provided along the way.

"The necessary details are invariably provided in the compiler manuals but, the explanations are usually written in a way which only begins to make sense once you know what's going on"

We are opting for maximum speed for word separation, so I shall be using an assembly language word stripper. C is a very capable language for serious Amiga programming but there are still times when it pays to drop into 68K assembler in order to gain a bit of extra performance. To be able to produce 'mixed code' its

necessary to know a little about what happens when a C compiler makes a function call. The good news is that, providing you understand C and 68K assembler, learning about the mechanics of going from one to the other is not that difficult!

The necessary details are invariably provided in the compiler manuals but, the explanations are usually written in a way which only begins to make sense once you know what's going on in general terms. This month's notes should complete this part of the picture.

So, essentially we have got to create two pieces of code: firstly the high-level C code for loading a file into memory. Secondly, the piece of assembler code whose job is to actually search through the buffer looking for (and isolating) individual words.

High-Level C Code

This is the easy part because the high-level code has only a few well-defined jobs to perform. It must look at the file specified on a CLI command line, find the file, check its size, and then allocate a suitable amount of buffer space before copying the file into memory. The only other thing which the routine needs to do is pass control to the assembly language patch which scans the file for words. Once control returns to the C module we just execute a few appropriate deallocation/closedown statements.

The code I have used is quite deeply nested. To appreciate why this is necessary let's have a look at what has to be checked in order to get a successful file load...

A: User must have given the correct number of parameters on the CLI command line.

B: The file specified must actually exist.

C: Memory must have been successfully allocated for a FileInfoBlock structure.

D: The AmigaDOS Examine() call (which will place the file details into the 'file info' block) must have been error free.

E: The memory allocation for the buffer must have been satisfactory.

F: File must then have been successfully opened and loaded into the buffer area.

Each of the above stages are dependent on any earlier stages being error free. Each operation is therefore tested and subsequent operations only carried out providing all earlier operations have been successful - its this requirement that is most easily handled by deep nesting. At the heart of the 'successful test' sections you will find the reference to my assembly language routine. This is a relatively tidy way of ensuring that the SeparateWords() routine is ONLY called if all of the abovementioned conditions are met. Here is the source code for the C based section of the extract_words program...

See program 1 opposite

The Magic Linking Process

Before we can handle the assembly language coding it is necessary to know a little about what goes on when C function calls are executed. When I place a call to a function, say SeparateWords(), into a C source program the compiler uses the source code statement to generate a reference of the same name. In most cases the compiler tags on an initial underscore to the function name,

Program 1

```

/*
=====
*/
/* EXTRACT WORDS: Word separator which uses an assembly language patch */
/* Programmer: Paul Overaa */
/* Date: 4th Oct 90 */
/* Note: The program just provides an unsorted list of words. Use from the */
/* CLI like this... extract_words <filename> */
/*
=====
*/

#define FIB_SIZE (LONG) (sizeof(struct FileInfoBlock))

#include <exec/types.h>
#include <exec/memory.h>
#include <libraries/dos.h>

ULONG g_filesize; /* exported as _g_filesize */
ULONG g_buffer_p; /* exported as _g_buffer_p */

main(int argc, char *argv[])
{
    BOOL LoadBuffer(), error_flag=TRUE; /* guilty until proven innocent approach */
    struct FileHandle *fh, *Open();
    struct FileLock *filelock_p;
    struct FileInfoBlock *fib_p;

    if(argc=2)
    { /* user has given a filename so first check to see if it exists */
        if (filelock_p=(struct FileLock *)Lock(argv[1],ACCESS_READ))
        {
            if(fib_p=(struct FileInfoBlock *)AllocMem(FIB_SIZE,MEMF_PUBLIC))
            {
                if(Examine(filelock_p,fib_p))
                {
                    g_filesize=fib_p->fib_Size; /* now we know how big the file is */
                    if(g_buffer_p=AllocMem(g_filesize,MEMF_PUBLIC))
                    {
                        if((fh=Open(argv[1], MODE_OLDFILE))!=NULL)
                        {
                            error_flag=FALSE; /* clear... everything worked O.K. */
                            g_filesize=Read(fh,g_buffer_p,g_filesize);
                            Close(fh);
                            SeparateWords(); /* call my assembly language patch */
                        }
                        FreeMem(g_buffer_p, g_filesize);
                    } /* end of if AllocMem() for buffer */
                } /* end of if Examine() */
                FreeMem(fib_p,FIB_SIZE);
            } /* end of if (fib_p) */
            Unlock(filelock_p);
        } /* end of if (filelock) */
    } /* end of if(argc=2) */

    if (error_flag) {printf("sorry - cannot get details of this file\n");}

} /* end of main() */

/*
=====
*/

```

so the call to a C function `SeparateWords()` has the linker searching for a routine called `_SeparateWords`. It is this routine which we have to provide.

The exact code that the various C compilers produce when they see a reference to a function call does vary and the place to look for details is your compiler manual itself. All you need to know to start with is that the usual end result is that any parameters present in the function call are pushed onto the stack and then a call is made to the appropriate subroutine. We are not going to talk about parameter passing in this article because our call will be a simple one, ie there will not be any function call parameters.

If all the references and directives are right the rest is easy..."

With the C code out of the way, the next step then is to write the assembly language source and assemble it to produce linkable (as opposed to directly executable) object code. We have got to use a couple of assembler directives called `XDEF` and `XREF` to get things running properly. `XDEF` is a directive used to define labels which are visible to other modules at link time - if we leave this out the linker will not be able to resolve the `_SeparateWords` reference present in the C code. `XREF` goes the other way, i.e. it tells the assembler that the info needed about an item will be imported when the assembly language object-code module is linked.

If all the references and directives are right the rest is easy... we compile the C source, assemble the assembly code, and then use 'Blink' to link the modules to the startup-code.

Assembler Code

The Assembly language code checks for groups of characters in the ranges `a-z` / `A-Z` and regards a word as any set of these characters delimited by ANY other characters!

The assembler code may look nasty, but in actual fact it is not. The routine starts with an instruction to preserve the registers which are going being used. Additional preliminary code then collects an output handle and loads that, plus the buffer's start address and the textfile's size, into my chosen registers (see descriptions in the code itself).

To find the start of a word we use two loops which scan through the file characters to see if they lie between `a-z` or `A-Z`. As soon as a letter is detected we branch to `START_FOUND`. A similar pair of loops then continue scanning but now look for the opposite conditions (char-

KAD-SOFT UK

BRITAIN'S FOREMOST AMIGA PD LIBRARY

KA1 - The Business Collection. Spreadsheet, Database & Wordprocessor. 2 disks
 KA2 - The Wordprocessor for the Amiga
 KA3 - C-Computer Assembler & Linker
 KA4 - The Brilliant RIMS database programme
 KA5 - Disk Doctor Collection
 KA6 - CLI Help. Worried by CLI? This one will make everything clear
 KA7 - A Collection of brilliant arcade games
 KA8 - Predators Mega Demo. Brilliant twin disk demo
 KA9 - Break out construction set
 KA10 - Nightmare on Elm Street Demo
 KA11 - North Star and Silent Demo
 KA12 - Star Trek Brilliant 3-disk game
 KA13 - DeLuxe Music Construction Kit A collection of instrument for the original programme
 KA14 - Magnetic Fields Demo. The Ultimate Bobs & Sprites Demo
 KA15 - Robocop Demo. Brilliant
 KA16 - Star Trek The Next Generation. 1 Meg shareware
 KA17 - Space Ace Demo
 KA18 - The North Star Mega Demo
 KA19 - Cool Cougar Demo. Cartoon quality
 KA20 - Virus Killer
 KA21 - The Anti-ST Demo Disk
 KA22 - The Miami Vice Demo. Digitised sounds
 KA23 - Kylie Minogue Demo disk 1
 KA24 - Kylie Minogue Demo disk 2. Needs KA23 to run
 KA25 - Larn version 12. Brilliant Dungeons and Dragons game
 KA26 - Shanghai. Playable Demo of great game
 KA27 - Utilities Collection 1. Quick copy, P copy, Dir Master, Funkery, Blitz, Virus X
 KA28 - Games Collection 1. Cribbage, Tiles, Bullrun, Tic Tac Toe
 KA29 - Games Collection 2. Amoeba, Yelp, Rock Slide, Egyptian Run
 KA30 - Bank, Home Help, Home Finance Packages
 KA31 - Elvira. Brilliant Demo
 KA32 - RAF Mega Demo. Brilliant 2 disk Demo
 KA34 - North Star and Fairlight Mega Demo 3. Brilliant 2-disk Demo
 KA35 - Death Star Mega Demo. Yet another twin-disk Demo
 KA36 - Fractal Flight. Brilliant Fractal Demo
 KA37 - Viz Slide Show
 KA38 - Fish Games Collection. 3 disks
 KA39 - Holy Grail Adventure. Brilliant text adventure. 1 Meg
 KA40 - Star Trek The New Version. Brilliant 2 disks
 KA41 - Tiffany Demo

New to our PD Library Collection

KA42 - Dick Tracey Demo. Brilliant
 Red Devils Demo of Hit Film. 2 disks
 KA43 - Mutant Ninja Turtles Demo!!!
 KA44 - X Copy III. The brilliant disk copier
 KA45 - BudBrain Demo. Brilliant New Demo. 2 disks as reviewed.
 Over 18s only
 KA46 - Flash Beard one of the very best PD Games
 KA47 - Quickbase. A really simple and easy to use database
 KA48 - 'C' Manual. 3 disk set. A great marvel for all you 'C' programmers. Includes examples. Special price £5.00
 KA49 - Red Devils, Crunchers, Archivers & Virus Killers V.20. Loads of great progs for the serious users
 KA50 - Red Devils, Darkstar Comp. Includes Coma, End of Maloy, The Links Journal & many more
 KA51 - Formula 1 Slide Show by Dag. A very good Digi piks slideshow — one of the best
 KA52 - Pendle Europa utils disk. Includes 1 Virus x 4.4 and an ST emulator that really works + loads more
 KA53 - 20z utils by Demolisher, a really great collection of utils, 202 in all. All you'll ever need.
 KA54 - Red Devils Soundtracker boot disk V.4.0 includes Med, Soundtracker, Noise Tracker + many more
 KA55 - Bruce Lee Slideshow. Brilliant High Quality Slide Show. 1 meg only

All Disks £2.50
2 Disks Free with every 10 ordered

Special PD Packs

Soundtracker Instrument Collection

10 Soundtracker disks — every instrument you'll ever need.

Was — £25.00. **Now — £16.00**

5 disk Starter Set inc 'CCI' Tutorial Database, Word Pros, Spreadsheets.

Was — £12.00. **Now — £10.00**

3 disk Fish games collections.

Was — £7.50. **Now — £5.00**

Phone now for our New PD Catalogue inc. a Free Demo (coming soon: Argatron Collection)

DISKS

3.5" 135 TPI DD/DS disks unbranded (KAO, Sony) 100% error free.

Certified Very High Quality will format to 880K easily.

All prices include P&P, labels

No quibble money back guarantee.

	10	25	50	100	200
	£6.80	£13.80	£26.00	£52.00	£92.00
	10	25	50	100	200
80 cap	£12.25	£18.00	£32.50	£53.50	£95.00
100 cap	£13.80	£18.75	£33.90	£54.80	£97.00
120 cap	£14.50	£19.40	£35.00	£55.90	£98.75

ACCESSORIES

Disk Boxes

80 cap — £6.75

100 cap — £7.75

120 cap — £8.75

Mouse Mat — £3.75

Mouse Holders — £3.75

Amiga Dust Covers

— £4.50

A500 1/2 Meg Upgrade

— £48.00



OPEN 9.30AM — 9.00PM 7 DAYS
Overseas orders please add £1.25



WE STOCK THE COMPLETE RANGE OF FISH, AMICUS, SLIP DISK, T-BAG AND PANORAMA DISK COLLECTION

Send cheques & P Os payable to:
KAD-SOFT, A.U.I., 2 EBOR PADDOCK, CALNE, WILTS. SN11 0JY. Tel: 0249 817174

AUTHORISED DEALER FOR * AMIGA * STAR *

AMIGA (UK MODELS ONLY)

AMIGA 1500: B2000 + 1084SD + Twin Floppies + The Works! Plat, DPaint 3/Battle Chess/SimCity/Populus/Their Finest Hour 1049.00

WHY NOT ENHANCE YOUR A1500 WITH ONE OR MORE OF THE FOLLOWING:

Supra 30/48/80Mb A boot Drive Card 339/359/459

SUPRA DRIVES INCLUDE EXPRESS COPY BACKUP & CLIMATE S/W

A2286 AT Bridgeboard + 5.25" Drive PHONE

Supra 8Mb RAM Board Pop 2Mb 229.00

Supra 8Mb RAM Board Pop 4/6/8Mb 349/459/559

Hi-Res Video Card (Flicker Fixer) 289.00

A500 FIRST STEPS Education Pack 539.00

A500 SCREEN GEMS Pack 359.00

Commodore 64C NIGHT MOVES Pack 149.95

PRINTERS

Citizen 120D+ 129.95

Star LC-10 159.00

Star LC-200 Colour 209.00

Star LC24-10 209.00

Star LC24-200 259.00

Star LC24-200 Colour 299.00

Star XB24-10 24 pin 481.85

Okimate 20 Ribbons/Heads/Paper PHONE

MONITORS

Commodore 1084S Stereo 239.00

Philips 8833-II Stereo Colour 249.00

Quadram Hi-Res Multi-Scan 329.00

DISK DRIVES

A590 Autoboot 20Mb + S/W 279.00

A2000 Internal 3.5" p&p £2 69.95

A500 Replacement Internal 3.5" p&p £2 69.95

High Quality Amiga Ext 3.5" Metal Cased p&p £2 69.95

MISCELLANEOUS

A500 RAM/Clock 512Kb with Disable SW free p&p 39.00

A500 RAM/Clock 1.8Mb (Internal Connect) 149.00

RAM Chips for A590/2091 per 512Kb 29.00

A500 Compatible Power Supply 49.00

Kickstart V1.3 ROM for A500/2000 28.00

1Mb Fat Agnus 8372A 69.00

CIA Chip 8520 15.00

Rendale 8802 Genlock 199.00

Vidi-Amiga PAL Frame Grabber inc filters 129.00

RGB Composite Video Splitter 69.95

Surge Protector 4-Way Block/3-Way Adapt p&p 15.95/19.95

ALL PRICES INCLUDE 15% VAT
CARRIAGE £5 (EXPRESS £10)

Prices subject to change without notice. E&OE

Delta Pi Software Ltd

8 Ruswarp Lane, WHITBY, N. Yorks. YO2 1ND.

TEL/FAX: 0947 600065 (9am - 7pm)

colorVision

TALENTED AMIGA PROGRAMMERS

Required for ongoing development of Internationally successful system, and to develop new products from our new South Manchester offices. The applicant should be well versed with the Amiga Machine Language, and have good graphic art skills. When responding please supply details of any commercial or non-commercial developments to date. Salary negotiable.

Write with C.V. to:

Mr A. Ford (General Manager Europe)
34 Bruntwood Avenue,
Heald Green,
Cheshire SK8 3RU

Adventure Now! Continued from page 91.

INTERPLAY GET THEIR RINGS

My favourite adventure software company Interplay, whose classics include the Bards Tale series, and Wasteland etc, have announced that they are producing a new version of LORD OF THE RINGS. I thought that Melbourne House owned the rights to that one, but it seems the intrepid lads from the New World are well on the case. The game will feature a 'Times of Lore' type overhead view, using a scrolling open map approach with members of your party faithfully following you wherever you go. To get round the obvious drawback of knowing what to do if you have read the book, Interplay have (gasp) introduced some new characters to join the Tolkein originals. Is nothing sacred?

ADVENTURE REVIEWS

HERO'S QUEST I SIERRA £29.99

Things actually got off to a bad start here, when Sierra found out that Milton Bradley already had a board game with the same title, so officially, this game is now known as Quest for Glory I.

All the same, it features three possible hero types, Fighter, Thief or Magician and consequently the game plays three different ways. Each character needs to interact with the story in ways that will help his own chosen profession, for instance it is no good a magician visiting the Rogues' Tavern and getting mixed up in a bar brawl, or a fighter solving a quest for a witch and getting extra spell tokens as a reward. This can become confusing for the player, and that is where this particular game comes unstuck. I do not want to spend over an hour solving a puzzle only to find that I should not have bothered, because it did not help me at all. As a graphically stunning project, full marks to Sierras team for producing some of the prettiest scenes yet, and walking around the town of Freiburg with its quaint buildings and sampled sounds you really do get the feeling of being right there.



Hero's Quest.

The plot is centred around said town, whose inhabitants are in dire need of a Hero to save them from the clutches of an evil force. What has happened to the Baron and his family, can you unravel the mystery and defeat the evil Baba Yaga?

As in any Sierra game, the attention to detail is tremendous, but sometimes that can prove to be a hindrance, because although you may be watching a wonderful scene of townspeople going about their business, the game speed slows down to a snails pace, which for me anyway is highly frustrating. You are free to explore really anywhere you want to, and fighting or killing monsters can do wonders for your bank balance, however, early on try to avoid the more unsavoury monsters and stick to the brigands, that way your experience levels and skill will rise rapidly.

Sierra have tried very hard to create a realistic D and D atmosphere, but I fear they have tried a little too hard and have produced a rather confusing game to play and win, although very entertaining just to play.

PERSONAL RATING 6

OMNICRON CONSPIRACY IMAGEWORKS £19.99

This is an intergalactic adventure not dissimilar in style to Interplay's Neuromancer in that the majority of the screens are of the horizontal scrolling variety reminiscent of the cheaper end of American graphic adventure releases. First Star Software (the authors) are not recognised as a major US player, and I am a little suprised that Mirrorsoft have got involved with it. The graphics and sound seem to be ported over direct from the original IBM version which naturally enough do not do our Amiga justice, and the mouse control leaves a lot to be desired when moving the hero from one room to another. The program cannot make its mind up as to which room you should be in until you have placed the character dead centre in each doorway.

If I sound pretty unimpressed with this game it is because it belongs with publishers who are not the quality-conscious providers which Mirrorsoft are usually.

The plot for, what it's worth, concerns you as a drug busting law enforcer, who is ordered by a very unfriendly Police Chief on Cron to find out what happened to the previous undercover agent who seemingly disappeared after going aboard a star freighter. No one at police HQ seems to want to help you, and outside death comes pretty quickly without any warning, so save often, you have been warned.

A poor American import.

PERSONAL RATING. 3

CAPTIVE MINDSCAPE £26.99

WHAAAAAT!!!! 250 years in suspended animation!!! Guilty on all counts! They cannot be serious!

Serious they are I am afraid to say, and you slowly succumb to the freezing fluids as the needle is inserted..... But what happens next, is that you wake up suddenly to find a full scale war going on outside your cell! Looking around your room it is plain that some computer shutting down has been responsible for your awakening, and that somehow you have to get out.

Sitting in the corner of the cell is a strange briefcase, that turns out to be some kind of computer device for communicating with the outside world. You open it and finding some instructions stuck into the lid, power it up and strange holograms flicker on. Escape may be possible after all.

This is where you start CAPTIVE, having just communicated with four droids via the briefcase, they become your eyes and ears and effectively your party in this ingenious role playing epic written by the famed Tony Crowther. You start by locating the home planet base of your droids (coordinates in the manual) and you send them off there in their ship, meanwhile you need to initialise and name your party members, this process gives them some initial statistics for dexterity, wisdom and vitality.

When the ship lands you are then presented with a Dungeon Master-like view of the base with all its differing monsters and shopkeepers etc. You must explore the corridors, fighting nasties and getting gold to buy extra goodies at the shops. Look in every nook and cranny, open cupboards to get some hidden rewards, and always remember to keep your droids powered up (there are some power points dotted about here and there). Once you have thoroughly seen everything on the first base (including a professor in a computer room) you have to blow it up and advance to the next base. There are ten bases in level 0 and a fairly easy space station to rescue yourself from. It gets harder after that. Much harder.

This is a game I cannot fault, apart from a little user unfriendliness on the part of the mouse control for fiddling with the droids 'bits and pieces'. It has great graphics, a great atmosphere, a real feel to it, in short it's worth every penny of its purchase price. Go out and buy it NOW.

PERSONAL RATING 10

THAT'S IT FOR THIS MONTH. LOOK OUT NEXT ISSUE FOR SIERRAS CODENAME ICEMAN FOR STARTERS, AND SOME MUCH NEEDED HELP FOR THOSE DEVIOUS PUZZLES.

A.M.

FIRSTCHOICE COMPUTERS

LEEDS 0532 637988



UNIT 8, ARMLEY PARK COURT, OFF CECIL ST, ARMLEY, LEEDS LS12 2AE

VISA

ALL PRICES INCLUDE VAT AND DELIVERY. ALL OUR PRODUCTS ARE GENUINE UK SPECIFICATION. FULL REPAIR SERVICE AVAILABLE. FREE ESTIMATES

COMPUTERS

AMIGA A500 PACK
INC. WORKBENCH 1.3,
AMIGA BASIC, MOUSE,
TV MODULATOR, LEADS,
EXTRAS DISK, PSU,
MANUALS AND
TUTORIAL
£349.00
FLIGHT OF FANTASY
PACK £369.00
Only until Stocks Last

SCREEN GEMS PACK

A500 PACK AS STD PLUS
BACK TO THE FUTURE II
DAYS OF THUNDER, KNIGHTBREED,
SHADOW OF THE BEAST II
AND DELUXE PAINT II
NEW £369.00
WITH ANY AMIGA PACK YOU HAVE
THE OPTION TO BUY THE AMAZING
ASTRA PACK
10 INCREDIBLE GAMES INC.
E-MOTION, KID GLOVES, POWERPLAY,
RVF HONDA, TOWER OF BABEL,
SHUFFLEPUCK CAFE AND MANY MORE
ONLY £24.99!

CHRISTMAS PACK

TAKE THE HEADACHE OUT OF
BUYING A COMPUTER THIS
CHRISTMAS.
NO NEED TO SHOP AROUND.
WE'LL MAKE SURE YOU GET
EVERYTHING YOU NEED IN ONE
SUPERB VALUE PACK.
COMPRISES ANY AMIGA GAMES
PACK
PLUS A TOP QUALITY CRUISER
JOYSTICK, MOUSE, MAT, 10 DISKS,
AMIGA FITTED COVER, AND 3 EXTRA
GAMES!
£399.99

CLASS OF THE 90'S

BUSINESS PACK
NOW WITH 1 MEG OF RAM AS
STANDARD!!
A500 PACK PLUS KINDWORDS 2.0
PAGESETTER, ARTISTS CHOICE, HEAD LINE
FONTS PACK, AMIGA LOGO, SUPERBASE
PERSONAL, BBC EMULATOR DE LUXE PAINT
II, MAXIPLAN SPREAD SHEET, DR T'S MIDI
RECORDING STUDIO, MIDI INTERFACE
MOUSEMAT, 10 DISKS AND DISKETTE
STORAGE WALLET
£539.99
NEW IN STOCK 'FIRST STEPS PACK'
SIMILAR TO THE CLASS OF THE 90'S PACK
BUT AIMED AT A YOUNGER AGE GROUP

AMIGA 1500 NEW

THIS MUST BE ONE OF THE BEST
VALUE AMIGA PACKAGES
YOU CAN BUY
SPECIFICATION:
* COMMODORE 1084 S STEREO MONITOR
* DUAL DRIVES AS STANDARD
* SEPARATE QUALITY KEYBOARD
* PLATINUM WORKS INTEGRATED BUSINESS
PACKAGE INC WORDPROCESSOR, DATABASE
AND SPREADSHEET
* DELUXE PAINT II GRAPHICS PACKAGE
* BATTLE CHESS 3D CHESS SIMULATION
* THEIR FINEST HOUR FLIGHT SIMULATOR
* SIM CITY + TERRAIN EDITOR
* POPULOUS + PROMISED LANDS
Only £1089.00

PRINTERS

STAR LC10 MONO
THE EXCELLENT LC10 IS PACKED
WITH FEATURES NORMALLY
FOUND ON MUCH MORE
EXPENSIVE PRINTERS
* 9 PIN PRINT HEAD
* 4K BUFFER
* 144 CPS DRAFT 36 CPS NLQ
* MULTIPLE BUILT IN FONTS
£159.00

STAR LC200 COLOUR
9 PIN HEAD, 180 CPS DRAFT, 225
CPS HIGH SPEED DRAFT
18K BUFFER & RESIDENT FONTS
11.7" CARRIAGE THAT CAN TAKE
LANDSCAPE FORMAT, OPTIONAL
SERIAL INTERFACE, COMES WITH
A MONO AND COLOUR RIBBON
ONLY £209.99
NEW

STAR LC24-200
24 PIN HEAD, 200 CPS DRAFT ELITE,
222 CPS HIGH SPEED DRAFT,
67 CPS LQ, 7K BUFFER
EXPANDABLE TO 39K, 10 RESIDENT
FONTS 11.7" CARRIAGE
(LANDSCAPE) SERIAL INTERFACE
OPTION
ONLY £249.99
NEW

STAR LC24-200
COLOUR
THE 7 COLOUR VERSION
OF THE NEW 80 COL 24
PIN LC24-200
ONLY £299.99
NEW

CITIZEN SWIFT 24
SUPERB QUALITY 24 PIN
MACHINE
* 24 PIN PRINT HEAD
* 192 CPS DRAFT & 64 CPS NLQ
* 8K BUFFER EXPANDABLE TO 32K
* OPTIONAL COLOUR CAPABILITY
360 DPI
* ADD £34.99 FOR COLOUR OPTION
* 2 YR WARRANTY
£289.99

EPSON EPL-7100 LASER
* A4 PAGE LASER PRINTER
* MULTIPLE BUILT IN FONTS
* 512K MEMORY
* EXPANDABLE TO 6MB
* 300+300 DPI GRAPHICS
* 6 PAGES PER MINUTE
* SMALL FOOTPRINT
£919.99

ALL OUR PRINTERS INCLUDE A STD CENTRONICS CABLE FREE!!

HARD DRIVES

AMIGA A590 20 MEG

THE COMMODORE A590 HAS A BUILT
IN UNPOPULATED RAM BOARD SO YOU
CAN EASILY UPGRADE YOUR AMIGA
MEMORY BY UP TO 2 MEGS WITHOUT
INVALIDATING YOUR WARRANTY
(AUTOBOOTS FROM KICKSTART 1.3
ONLY)

NEW PRICE £289.99

ADD £37.00 FOR EACH 1 MEG OF EXPANSION

AMIGA A590 POPULATED

WITH 2 MEG OF RAM

NEW PRICE £359.99

DRAM CHIPS (256K*4) TOSHIBA, INTEL, ETC
QUANTITY = 4 £5.00 EACH
QUANTITY = 8 £4.75 EACH
QUANTITY = 16+ £4.50 EACH

DISKS

3.5 INCH BULK DISKS SONY/VERBATIM

100% ERROR FREE, 135 TPI
LIFE TIME GUARANTEE

QTY	£
10	£5.99
25	£12.99
50	£22.99
100	£39.99
200	£74.99
300	£109.99
400	£135.99
500	£159.99
1000	£309.99
DISK LABELS 500	£7.99
DISK LABELS 1000	£13.99

DISCOUNT SOFTWARE

* THE WORKS PLATINUM EDITION	£64.99
* FANTAVISION CREATE YOUR OWN MOVIES WITH GREAT ANIMATION	£19.99
* COMIC SETTER THE GREAT DTP PACKAGE FOR COMIC STRIPS	£19.99
DIGIVIEW GOLD VERSION 4	£124.99
VISTA LANDSCAPE GRAPHICS/W	£49.99
AEGIS SONIX MIDI MUSIC PACKAGE	£29.99
AEGIS GRAPHICS/CAD STARTER PACKAGE	£29.99
AEGIS VIDEO TITLER	£89.99
AUDIOMASTER 2	£39.99
SUPER PLAN SPREADSHEET	£39.99
SUPERBASE PERSONAL 2	£39.99
SBA CASH ACCOUNTS S/W	£69.99
PROTEX V.5	£116.99
SCRIBBLE W/P PLATINUM EDITION	£43.99
PENPAL INTEGRATED PACKAGE	£99.00
PUBLISHERS CHOICE	£74.99

PAGE MODEMS

LINNET

THE STANDARD LINNET MODEM HAS BEEN
DESIGNED TO OFFER THE MAXIMUM
FEATURES AT THE LOWEST COST V21 (300/
300 BAUD), V23 (1200-755/1200 BAUD)

£149.99

LINNET 1200

THIS MODEM COMES WITH A HIGHER
TRANSMISSION SPEED SUITABLE FOR
MORE DEMANDING APPLICATIONS V21,
V23 AND V22 (1200/1200 BAUD)

£229.99

LINNET 2400

TOP OF THE RANGE QUAD MODEM WITH
EVEN HIGHER TRANSMISSION SPEEDS AND
OPTIONAL ERROR CORRECTION V21, V23,
V22, AND V22BS (2400/2400 BAUD)

£359.99

PERIPHERALS

CUMANA CAX 354 3.5" 1 MEG DRIVE ONLY	£69.99
MIDI INTERFACE	£22.99
NAKSHA MOUSE	£29.99
MINIGEN GENLOCK	£99.00
RENDALE 8802 GENLOCK	£189.00
ROMBO RGB SPLITTER	£67.99
ROMBO VIDI AMIGA	£99.99
ROMBO VIDI CHROME	£18.99
AMIGA MODULATOR	£19.99
AMIGA CONTROL STATION	£43.99

MONITORS (INC LEADS)

COMMODORE 1084 SD

STEREO SOUND
640 * 256 RESOLUTION
ANTI GLARE SCREEN
£259.00

PHILIPS CM8833

MARK II

STEREO SOUND
600 * 256 RESOLUTION
GREEN SCREEN FACILITY
1 YR ON SITE WARRANTY
£239.99

FANTAVISION OR COMIC SETTER
ONLY **£15.00** WHEN YOU BUY ANY RAM
EXPANSION

RAM EXPANSION

TAKE YOUR AMIGA A500 UP TO 2.3
MEGS TOTAL WITH THIS EASY TO FIT
BOARD. USES EXISTING EXPANSION
SLOT. THIS BOARD CAN BE SUPPLIED
PARTLY OR FULLY POPULATED
UNPOPULATED £34.99
512K POPULATED £52.99
1 MEG POPULATED £89.99
1.5 MEG POPULATED £105.99
FULLY (1.8 MEGS) £119.99
(ADDITIONAL 'GARY' BOARD SUPPLIED
WITH 1 MEG CONFIGURATIONS OR
ABOVE)
1 MEG UPGRADE
TOP QUALITY MEMORY EXPANSIONS
INC BATTERY BACKED REAL TIME CLOCK
AND CONVENIENT ON/OFF SWITCH
12 MONTH GUARANTEE
£37.99

ACCESSORIES

AMIGA SCART LEADS	£9.99
AMIGA RGB LEADS	£9.99
MIDI CABLES 2M	£3.99
MIDI CABLES 3M	£4.99
MIDI CABLES 5M	£5.99
PRINTER CABLES 1.5 METRE	£5.99
PRINTER CABLES 2.0 METRE	£8.99
A500 COVER	£4.99
LC10 COVER	£4.99
LC24/10 COVER	£6.99
SWIFT 24 COVER	£6.99
12" MONITOR COVER	£5.99
14" MONITOR COVER	£6.99
14" TILT AND SWIVEL MONITOR STAND	£13.99
UNIVERSAL PRINTER STAND	£9.99
MOUSE MATS 8MM HIGH QUALITY ANTI STATIC	£4.99
100 CAPACITY LOCKABLE 3.5" DISK BOX	£7.99
50 CAPACITY AS ABOVE	£5.99

MAIL ORDER

ORDER BY TELEPHONE QUOTING
YOUR CREDIT CARD NUMBER
IF PAYING BY CHEQUE PLEASE
MAKE PAYABLE TO FIRST CHOICE
TEL 0532 637988
FAX 0532 637689

REMEMBER WE OFFER

- * FAST MAIL ORDER SERVICE
- * FREE POSTAGE UK MAINLAND
- * TRUE 2-3 DAY DELIVERY
(NEXT DAY DELIVERY ONLY £3.00)
- * GOODS TESTED BEFORE DESPATCH
- * CALL INTO OUR SHOWROOM
- * SPACIOUS FREE PARKING
- * FULL REPAIR SERVICE - FREE ESTIMATES

*** IT COSTS LESS AT FIRST CHOICE ***

- OPEN MON - SAT 9.00AM - 5.30PM
- SUNDAY OPENING 10.00AM - 3.00PM
- THURSDAY NIGHT LATE TIL 8.00PM



LEARN TO READ

Mark Rose sees Gary – no, not the Amiga chip – miss a football match and enjoy himself

PRISMA

Aha! I thought to myself when the Editor asked me to review PRISMA'S PLAY and READ "I'll get Gary (5 year old son) to have a look at the offering on Sunday afternoon, whilst I keep one eye on the Arsenal Liverpool game on T.V. and the other eye on his progress.

So what is this child taming package called PLAY and READ ???

Well, it is a reading system conforming to the National Curriculum (PRISMA'S claim not mine) primarily directed at the beginners in the 4 to 9 year old group.

The review software comprised 3 separate PLAY and READ boxes

Level 1

Part One Prof plays a new game

Part Two Prof looks at words

Part Three Prof makes sentences

PRISMA tell me that Part Four, "Prof hunts for words" will be released shortly with Levels 2 and 3 being available during 1991.

In "Prof Plays a New Game", the box contains; 1 audio cassette, 1 Story disk, 1 games disk and five little reading books. Listening to the cassette whilst following the story disk apparently helps to put the words that will be learnt using the games disk into context; the story also demonstrates how the keyboard is used when playing the subsequent games – only the spacebar and the four directional keys (or joystick) are used.

The real fun starts with the games disk which comprises a series of games that, when correctly completed, will enable



the child to read each of the five books, progressively building up his/her vocabulary. Upon completion of the course some 63 words would have been introduced.

The vocabulary is slowly and painstakingly built up. Books 1 2 and 3 each introduce 9 words whilst Books 4 and 5 each introduce 18 words. Every Book has its own game that introduces the new words as well as repeating any words learnt in previous game/s. Each game has 5 steps and it is only AFTER the last step has been completed should the book be read.

The opening Menu allows a choice of Book and Step. This facility is highly desirable as it allows the parent to pace the learning process by allowing either a re-

turn to a previously uncompleted step or to start the next step. You do not have to complete the book before you finish a lesson.

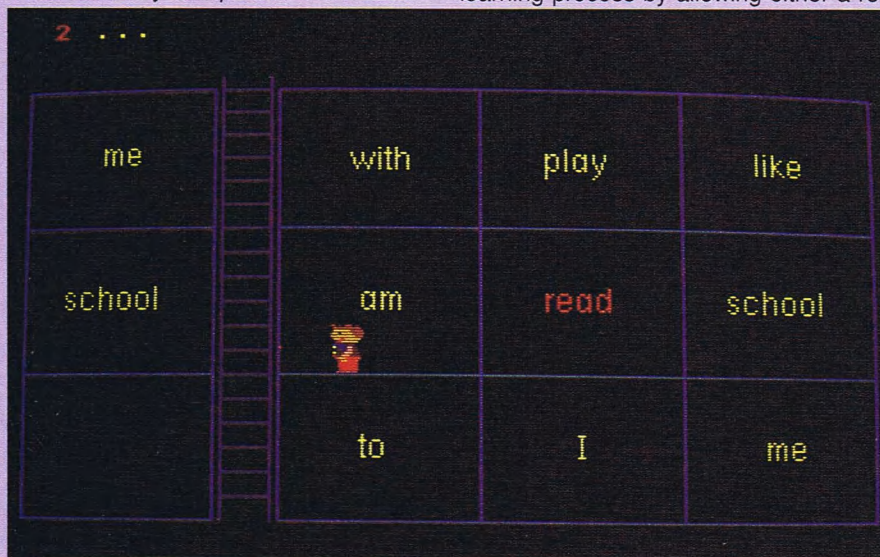
The Games screen has a 3 x 1 grid on the left, then a ladder to the right of which is a 3 x 3 grid. A little character, Prof, is waiting at the top of the screen. He has to be guided up and down the ladder and on and off to one of the words in the left grid, making the selection by pressing the spacebar (or fire button), then guided to the same word to be found in one of the 9 boxes in the right hand grid. As each correct selection is made the word changes colour and Prof jumps up and down; after two consecutive correct screens are completed, new words will appear and so the game progresses.

As the child progresses through the books, the time taken to complete each step takes longer; Gary started at Book 3. He had to complete 5 steps, each of which had 5 substeps. Each of the substeps presented a selection of words drawn from the 18 learnt in Books 1 or 2 or now being introduced. Each group had to be correctly matched before another group of words was presented for matching. He spent nearly 3 hours playing and thoroughly enjoyed himself. What better recommendation can you have than from Gary who finds the package makes learning fun? And at £24.99 it's a bargain!

M.R.

Price: £24.99

**Contact: Prisma Software,
P.O. Box 211, Chester CH1 3NJ.
Tel: 0244 326244**



Harmoni – an exciting new sequencer... *How to be an Amiga expert in Sound... C++ Part 2, Intuition V Part 2... How to be An Amiga Artist Part 3... Supercalc 5... Peggy the Arpeggiator... Amiga with Bells and Whistle... Improving on P.D. Part 5.*

Plus the amazing Caligari, Olo Fonts, Real Things – Birds, 3-D Professional, Light Force, Excellence! Hitec Modem, ATS Fax Card, Videoscape 3-D, Hisoft Basic... . . . and lots more!

MSM SUBSCRIPTION RENEWAL PRIZE DRAW WINNERS

NOVEMBER 1990

*Congratulations to the following
winners to our MSM October
Subscription Renewal draw*

J.A. Pedder from Luton WINS £150

A.J. Smith from Northampton WINS £50

R.D. Knight from Essex WINS £50

When **AUI** subscribers renew, their names will automatically be entered into our monthly renewal draw. Remember you can renew at anytime. Just call us on **091-510-2290**

Good Luck!

CHECKMATE A1500 PRIZE WINNER

Winner of the Checkmate A1500 Competition in the September/October edition of AUI is Simon J. Harper, Blackburn, who wins the A1500 expansion kit.

The correct answers were:

- 1) The Roofer
- 2) Mike Nelson
- 3) Rack-mounted version
- 4) Accelerates the A500 to 14.3MHz
- 5) Flicker fixer
- 6) ASDG INCORPORATED
- 7) Checkmate Digital Ltd., 80 Mildmay Park, London. N1 4PR.

As a consolation prize **Steven Wilkinson**, for sending us an exercise book full of hand-coloured art, wins our review copy of **The Art Department** – that's assuming SDL ever get around to sending it to us. And if we never get it (Andrew Leaning of SDL please note!) we'll send him a copy of **Videoscape 3-D** from **Oxxi-Aegis** who at least get us products to review.

FOCUSSING ON THE FUTURE

Joe Gene Parris looks at a longtime Amiga-leading software house in the U.S.A

Even in futuristic California, with Silicon Valley close by, predicting the next trend in computer technology isn't easy. But for John Houston, President of Oxxi, Inc., it seems the best way to predict the future is simply to make it happen to create it by producing leading edge products.

For example, *Maxiplan* was one of the earliest Amiga spreadsheets. When Houston released it in January 1987, *Maxiplan* was one of the first programs of its kind on any computer to incorporate linked worksheets, 3D business graphics, a macro language, and a graphic user interface. These features are only recently coming to market on the IBM and Macintosh in high cost products like *Excel* and *WingZ*. Not surprisingly *AUI* gave

Maxiplan its award as the best business product of the year.

Oxxi's *Nimbus*, the first small-business cash-basis accounting program for the Amiga, and *A-Talk III*, the best-selling telecommunications program, also broke new ground in Amiga software technology, and influenced a number of competitors.

Now Oxxi hopes to define part of the Amiga market once again with another generation of new and radically improved products such as *AudioMaster III*, *VideoScape 3D*, *VideoTitler 3D*, *SoundMaster* and *SpectraColor*, a new 4096-color HAM paint with Brush Animation.

For Houston, developing the kind of software we will all be using next year is as

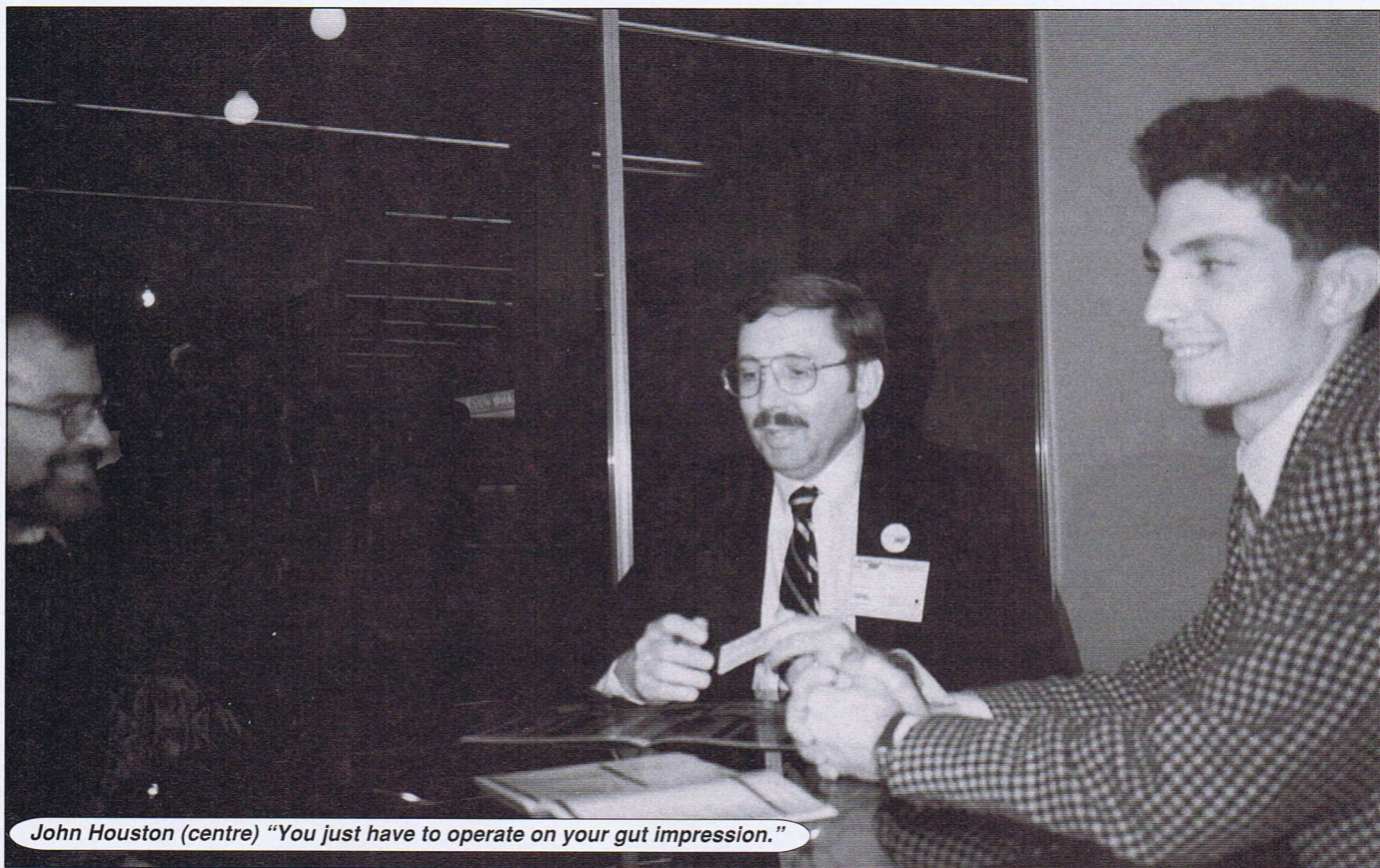
much an art as it is a science.

"There are two approaches to software development," he says. "One way is through a series of surveys: surveying dealers and customers, and looking at other platforms for successes that can be repeated on the Amiga."

Gut Impression

The second approach is more intuitive than logical: "The problem with analysis occurs when you're really coming up with a breakthrough product," says Houston, "because people don't yet perceive a need for it."

Sometimes you just have to operate on your gut impression of what the market needs."



John Houston (centre) "You just have to operate on your gut impression."



A Industry Veteran

John Houston knows a lot about developing and marketing software because he's been at it longer than almost anyone else in the personal computer industry. He started his career at Control Data in Washington, DC, programming mainframe operating systems. There Houston worked with many people who would later go on to influence today's computer industry. (One of these was Seymour Cray, one of the founders of Control Data, and currently chairman of Cray Supercomputing.)

While at Control Data, Houston also raced cars part-time, and became successful enough to attract the sponsorship from Wrangler Jeans. In 1978, after twelve years at Control Data, he left to devote more time to racing and investments, restaurants, liquor stores and real-estate properties. But he still missed his field of preference: computers.

In 1980, Houston met up with several former colleagues from Control Data who had started a new software company called Sorcim, Inc. At Sorcim, he was responsible for the launching of SuperCalc, still one of the leading spreadsheets on the PC platform. (to be revised in March AUI.)

In 1982, George Tate invited Houston to direct the marketing and product development for a small publisher of database software called Ashton-Tate. Houston was instrumental in establishing dBase, Ashton-Tate's leading product, as the worldwide standard for database management on the IBM/PC.

When Ashton-Tate went public in 1985, Houston decided to go private, to found his own company, now known as Oxxi, Inc.

Houston's favourite example is Aldus. "People said that *Pagemaker* for the Mac served a limited niche, and that the time and effort to produce the product didn't justify bringing it to market. In fact, *Pagemaker* turned out to be the number one application during the first two years that it was out. This was a case where the developers followed their intuition."

Under Houston's guidance, Oxxi has found more than one way to bring technology to the Amiga. Not only does Oxxi develop products from scratch, the company is also takes existing products and improves them.

Oxxi made its first venture into the graphics and animation field with the acquisition of the Aegis Development Inc. product line in November 1989, with over 30 software programs for the Amiga and Macintosh. Other acquisitions included PAR Software and Glacier Technologies, two companies with a broad range of graphics and Amiga productivity titles.

Why did Oxxi acquire these companies? "Normally we look at companies not for the company myself, but for the people who develop the products," say Houston. "Aegis had several good developers who we wanted to work with, not only on the current Aegis products but on other product ideas we had in mind as well."

Whenever Oxxi takes on a product, Houston insists that it meet certain minimum standards — such as the user interface and support of popular file formats. Product managers work with programmers on these issues because sometimes the developer of a program does not view the product from a marketing standpoint.

The final step is to "Productize" a new software program. Houston defines Productizing as tailoring new features to add extra convenience to the user.

"It is all the little things that can make a program either a joy to work with or a hassle. Sometimes this can take as long as the initial development."

It's very important to keep the user in mind at all time," say Houston. "That's 'Productizing' software, and it can take a long time to get it right."

NETWORKING

Along with its role as a major publisher on the Amiga platform, Oxxi has taken on some significant in-house development projects as well. Oxxi has been working on a joint-venture with Commodore to bring the Amiga into the world of Novell *Netware*. Novell is the leading network utility in the MSDOS category with a worldwide reputation. The soon-to-be-released software will work with both Amiga and third-party network cards. "Our product not only allows the Amiga to reside as a guest on a Novell Network, many of the functions normally reserved for the file server can be performed from the Amiga

as well. It is an extremely strong product which will bring the Amiga into the heart of the corporate market," says Houston. "This is a classic example of an opportunity we simply made happen rather than waiting for events to unfold themselves."

"Since the beginning, Oxxi has always striven to produce start-of-the-art software products that are market leaders in their category. Our original focus was on business productivity software, but with the Aegis acquisition we have broadened the scope of productivity products to include the disciplines of animation, graphics and sound."

Houston recently started another new enterprise, Outraegis Entertainment, to develop and market a new line of creativity and entertainment products. "We have some very exciting new entertainment products in the works which we will be announcing in the near future."

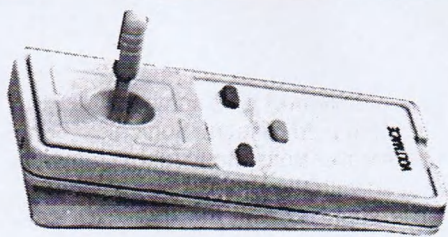
What next for Houston and Oxxi? "We see that the computer will become more and more a part of the everyday home environment, as it has already done in the business world. Software will need to become more "transparent" to the user, requiring little training or instruction for the average person to use," Houston says. "Producing that kind of computer product has been our goal from the very beginning. Developing products with a concern for true ease-of-use takes longer, and requires more thought. But in terms of satisfaction of use and usefulness for the end user, it is definitely worth the effort."

"We'll continue to look for areas where our focus on technology will help to redefine the marketplace," he continues. "Networking Amigas with PCs, video and 24-bit graphics will be very important in 1991 and beyond. We have already developed considerable strength in these areas, and we expect to be actively involved in pushing back the boundaries of the technology."

Houston has been successful in the past in producing the future, so there could well be more than a seed of truth in what he is saying now. It should be interesting for Amiga users to keep an eye on Oxxi, and find out how clairvoyant Houston turns out to be

J.G.P.





DELTA 3A ANALOGUE JOYSTICK

For Microprose F19 & Sublogic Flight Sim II fly your planes the smooth and realistic way with an Analogue Joystick. The Delta 3A is a light action, hand held, sprung return to centre joystick from a proven reliable design used for many years by BBC and PC Users.

On F19 the top two buttons fire the Missiles and the centre lower button fires the Cannon.

On FSII vers. 1.1 the Throttle is controlled by using the centre button and the stick.

DELTA 3A JOYSTICK £14.95

DELTABASE A YOKE STYLE JOYSTICK £29.95

AMI-CAT MOUSE ELIMINATOR JOYSTICK £29.95

F19 STEALTH FIGHTER £27.95

FLIGHT SIM II £27.95

SCENERY DISCS £14.95

AMIGA DISC DRIVES (CHINON) CASED WITH THROUGH PORT AND DISABLE SWITCH £59.95

Delta 3A Joysticks are available from your dealer or direct from us (Price includes VAT & P&P):

**VOLTMACE, UNIT 9 BONDOR BUSINESS CENTRE,
LONDON ROAD, BALDOCK, HERTS, SG7 6HN**



TEL: 0462 894410

FAX: 0462 894460



E.S.D

(mail order)



ACCOUNTS			
Arena Accounts	119.00	AREXX Macro Long	32.88
Small Business Acct +	69.47	Cygnus Ed. Pro. V2	48.97
Small Business Mgr	91.08	Hi-Soft Basic Ext	14.97
Personal Finance Mgr	22.85	Power Windows 2.5	51.54
BOOKS		UTILITIES	
Large range please phone, i.e.		AMI Alignment Kit	29.44
Amiga Ref Manuals, (set)	68.93	Amiga DOS Express	25.04
Amiga Desk Top Video	16.61	CU Mate	29.88
C Prog. Lang. 2nd. ed. (K&R)	20.97	Disk 2 Disk	27.55
COMMUNICATIONS		DOS 2 DOS	29.90
BBS-PC Bulletin Board	96.69	GOMF 3	25.75
K-Comm 2	22.46	Interchange	39.80
Ruby Comm	55.95	I/Change Modules (each)	16.70
C.A.D.		MAC 2 DOS	62.73
Aegis Draw 2000	159.95	Project D	25.44
Intro C.A.D.	44.95	Quarterpack	39.35
X.C.A.D. Pro (2 Mb)	338.25	X-Copy 2 + H/W	26.44
DATABASES		VIDEO & GRAPHICS	
Acquisition V1.3	179.85	Animation Studio (Disney)	98.90
Data Retrieve	39.95	The Art Dept.	55.97
Data Retrieve Pro.	179.47	C-Light	36.97
K-Data	34.95	CAN-DO	95.77
Ultra Card +	66.30	Calligrapher	85.29
D.T.P. & W.P.		Comic Setter	38.79
Excellence	129.00	C/Setter Sci/Fi, Super Heroes	14.91
Kindwords V2	34.95	and Fun Figures (each)	14.91
Pagestream 1.8	118.95	Deluxe Point 111	55.95
Pagesetter II	49.49	Deluxe Productions	109.16
Publishers Choice	68.77	Deluxe Video 111	68.95
Pen Pal	98.92	DigiPoint 3	52.90
Protext V4.2	64.86	DigiView Gold	119.83
Protext V5	98.47	Director (The)	46.82
Scribble (Platinum)	39.80	Director Toolkit	25.75
Professional Page V2	Phone	Fantavision	29.47
EMULATORS		Forms in Flight 2	88.39
A-Max 11	Phone	Movie Maker	37.79
AMIGA AT-ONE	195.47	Photon Cell Anim.	79.95
KCS Power PC Board	278.00	Pixmate	38.80
Atari ST Emulator	Phone	Pro Video Plus	121.21
PROGRAMMING UTILITIES		Sculpt Animate 4D	309.97
K-Gauge	22.46	Sculpt Animate 4D Jnr	79.85
		Turbo Silver	99.80
		TV-Show/Text each	68.29

Most items of software have a 20-55% discount off the R.R.P.

Please phone with your requirements.

★ ★ JUST IN-★ ★

AMIGA DOS inside & out

(inc. DOS V2) £16.61

AMIGA CD DRIVES from

under £500.00

(phone for latest)

Payment. By Phone: Quote your access/visa no. & expiry date.

By Post: send Cheques/Postal Orders or Access/Visa details to:

Enchanter Software Design
8, Dykes Close, Hessele
N. Humberside, HU13 0BW

Terms. Stock items sent within 24 hrs. Non-stock normally within 48 hrs.

Unreleased items dispatched A.S.A.P. Postage Free (up to 2 kgs). Enquiries/orders.

Tel: (0482) 644254 Enquiries/Orders

Tel: (0482) 646167 (9.00am to 7.00pm)

Answerphone service between 7.00pm & 9.00am

Footnote. Full range of AMIGA, S.T., & P.C. hardware/software/peripherals available. Prices may vary up OR down, correct at time of press.

AMIGA GRAPHICS SYSTEMS

SYSTEM A: HOME VIDEOPHOTOGRAPHER

- △ AMIGA A500
- △ MINIGEN GENLOCK
- △ VIDEO GENERICS TITLING
- △ D PAINT II PAINTBOX
- △ STARTUP WITH CLOCK, C BARS ETC
- △ 5 BLANK DISCS
- △ 30 DAYS FREE
- △ TELEPHONE HOTLINE!

DELIVERED £569

SYSTEM B: SEMI PRO/VHS

- △ AMIGA A500
- △ 1/2 MEG UPGRADE
- △ PRO VIDEO PLUS TITLING
- △ D PAINT II PAINTBOX
- △ FANTAVISION ANIMATION
- △ STARTUP WITH CLOCK, C BARS ETC
- △ RENDALE 8802 GENLOCK
- △ 5 BLANK DISCS
- △ 30 DAYS FREE
- △ TELEPHONE HOTLINE!

DELIVERED £799

SYSTEM C: PRO/SEMI PRO/S-VHS + VHS

- △ AMIGA A500
- △ 1/2 MEG UPGRADE
- △ S-VHS GENLOCK
- △ LEADS
- △ PRO-VIDEO PLUS TITLING
- △ D PAINT II PAINTBOX
- △ FANTAVISION ANIMATION
- △ STARTUP WITH CLOCK, C BARS ETC
- △ 10 BLANK DISCS
- △ 30 DAYS FREE
- △ TELEPHONE HOTLINE!

DELIVERED £1195

SYSTEM D: PRO/SEMI PRO/S-VHS + UMATIC

- △ AMIGA B200
- △ 2 MEG EXP MEMORY
- △ S-VHS/UMATIC GENLOCK
- △ LEADS
- △ PRO VIDEO PLUS TITLING
- △ D PAINT III ANIMATION
- △ VIDEO STUDIO
- △ START UP
- △ 10 BLANK DISCS
- △ 30 DAYS FREE
- △ TELEPHONE HOTLINE!

DELIVERED P.O.A.

SYSTEMS A, B, C + D ARE AVAILABLE WITH A 2 HOUR FREE COURSE AND OR TELEPHONE SUPPORT

TRIANGLE TV: 130 BROOKWOOD RD. LONDON SW18 5DD. TEL: 081-874 3418

AMIGA EXTRAS:

- PRO VIDEO PLUS
- D PAINT III
- VIDEO STUDIO
- FANTAVISION
- PRO VIDEO POST (NEW!)
- BROADCAST TITLER (NEW)
- TV TEXT/TV SHOW
- DIGITISER/FRAME GRABBERS
- GENLOCKS
- MEMORY UPGRADES/HARD DISCS

MAIL ORDER TRIANGLE TV 081-874 3418

AMIGA HIRE

- Turbo Card 68020 £50 pw
- 2 Meg Cards £25 pw
- Genlocks from £15 per day
- A500 Video Kit £35 per day
- As above with SVHS Genlock £45 per day
- Digitising Kit £35 pw
- Deposit and ID required on above hirings

AMIGA SOFTWARE PERSONAL TUITION

Your questions answered on the following software: PRO VIDEO PLUS, D. PAINT III (Animation) VIDEO STUDIO, TV TEXT/TV SHOW, DIGIVIEW GOLD. PRICE: £12.00 per 30 mins (allow 30 mins per package). Telephone Hotline: £5.00 per 10 mins.



TRIANGLE TV: 081-874 3418



THE NEW - "BEGINNER'S GUIDE TO AMIGADOS"

This is a highly effective way to take you from a beginner to an expert on AmigaDOS. This very popular package has now been COMPLETELY updated to cover all AmigaDOS versions. The package consists of a guidebook, a tutorial DISC, a crib card and many other exciting and interesting programs. This is a clear and well thought out guide to AmigaDOS. It takes you by simple steps, with many examples through the powerful AmigaDOS commands. The emphasis is on learning through experience and doing - not just reading like most other books. In no time at all you will master a fast, powerful and customised operating system.... you can easily include your own pictures, messages and programs. The guide includes an incredibly fast picture loader, a password system, a gallery of high quality pictures, a variety of boot up sequences, other high quality programs and much, much more.... Guide book, Disc, Cribcard etc. — only £13.95

NEW - "NEW DIMENSIONS"

Some of the most impressive effects yet seen on an Amiga. You will find that graphics and pictures float before your eyes in front of your screen! The depth of the pictures extends up to ten feet into the screen! These fantastic effects have to be seen to be believed. Included on the disc are generous numbers of 3D pictures, 3D graphics, 3D games and a 3D art program. We even provide a tutorial to help you design your own 3D effects on a paint package or write your own 3D programs. Included in this excellent package are two pairs of 3D specs. — Normal price £13.95 This month only £11.95

WIZARD'S GUIDE TO BASIC

This is a very effective and enjoyable way to learn BASIC. The whole concept is designed to help you learn quickly and achieve impressive results in no time. Your confidence and skills will rise rapidly as you make your way through this course. The Wizard's BASIC guide comes on two discs with a sophisticated electronic book - You can get help in the form of text, moving demonstrations, graphics, sound or speech with just a touch of a button. The course starts at beginner level and carefully rises to expert level. You will learn to master graphics, colour, sound, movement, speech, windows, menus, dataprocessing etc. Hundreds of example programs and demos are included. This is a value packed package which will leave you with a wealth of knowledge and expertise. — Excellent value £13.95

MASTERPIECE

"THE BEST PICTURES I HAVE EVER SEEN ON THE AMIGA" reported a recent review. This package takes you on a spectacular trip through the world of art. Every picture is of true quality and is displayed using thousands of colours. To help you enjoy the world's heritage of art to the full we have included comprehensive notes on each artist and painting. Whether you are an art expert or know nothing at all about art, this is a wonderful way to appreciate the great paintings of the world (and appreciate the graphic capabilities of your Amiga as well). The package comes with two discs packed full of pictures and information. — Outstanding value - £8.95

EXTRA VALUE!

Buy two or more of the above products and benefit from the following discounts....

2 products - £2 discount

3 products - £3 discount

4 products - £4 discount etc.

Discounts are given on the TOTAL value of the order.

UK P&P - FREE and by FIRST CLASS post Overseas orders welcome - Europeans please add 50p

Outside Europe please add £1.50 for airmail All payments in pounds sterling please.

Cheques / P.O.'s to:

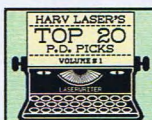
Wizard Software (Dept. AU102)

20, Hadrian Drive, Redhills, Exeter, Devon. EX4 1SR

Public domain like you've never seen...



1) Star Trek EXCLUSIVE!
New from Europe with sound effects.
2 disk set £5.00



2) Harv Laser's "Top 20"
Noted Amiga expert picks the 20 best.
4 disk set £12.00



3) MegaDemos EXCLUSIVE!
European animations, with free demo disk.
5 disk set £11.00



4) Something For Nothing
Desktop video, graphics and animation tools.
2 disk set £5.00



5) Games
Seven games for beginners and experts.
Single disk £2.00



7) ToolKit
Disk, icon, print, system and desktop utilities.
5 disk set £11.00



9) FontLib
Four dozen fonts.
Easy WorkBench control.
Single disk £2.00

PREMIER SOFTWARE

P.O. Box 3782
Redwood City, CA 94064 USA
(415) 593-1207

The 10 Best of Public Domain
Special offers from the premier public domain and shareware source for the Amiga.

Please add £3.00 per order for shipping and handling

Payment Terms:
Bankdraft or
International Money Order

For technical support write or call
0101 415-593-1207

Dealer & User Group inquiries invited.



6) MandelMania
A collection of Mandelbrot Set programs.
2 disk set £5.00



8) DeskBench
WorkBench 1.3 with DeskBench icons.
3 disk set £7.50



10) Animations
Dozens of demos.
All will run in 1 meg.
5 disk set £11.00

Public domain like you've never seen...



Dealer Inquiries Welcome

Amiga friendly! Every program is runnable from workbench!

Over 125 disks available!

Disks organized by topic.
Buy only the software you want!
Animations, games, tools, utilities, pictures, icons and much more...

Send £3.00 for catalog on disk to:
Premier Software
P.O. Box 3782
Redwood City, CA 94064
or call: (415) 593-1207

POST EXPRESS

GUARANTEE 2 YEAR WARRANTY WITH ALL COMPUTERS BELOW!

Amiga 500 Screen Gems Pack
Amiga 500 £399.99
Days Of Thunder £24.95
Shadow Of The Beast £24.95
Back To The Future II £24.95
Knight Breed £24.95
Deluxe Paint II £49.95

AND MORE! Total RRP
Over £600 £389 Our Price

Amiga 1500 PHC
Stereocolor monitor A1500
1024K RAM 2x3.5" disk drives,
Wordprocessor, Database,
Spreadsheet, Populus, Sim City,
D-Point III, Their Finest Hour, Books,
Mouse, Workbench and more!
Total RRP
over £1600 £1079 OUR PRICE

FIRST STEPS EDUCATIONAL PACK 5's AND OVER
Amiga 500, Modulator, 1024k, D-Point II, D-Print II, Pro Write 25, Info File, Music, Let's Spell at Home, Amiga Logo Talking Turtle, BBC Emulator, Tutorial Videotape, Mouse, Mousemat, 10 Blank disks + Books, Ed Supp' File, Work Bench and More!
Total RRP
over £800 £569 OUR PRICE

CLASS OF THE 90's EDUC' / BUSINESS PACK 1024k RAM
Amiga 500 Modulator
Maxi Plan £99.95
DAT's Midi Studio £149.95
D-Point II £49.95
Superbase Personal £49.95
Amiga Logo £49.95
BBC Emulator £69.95

Mouse, Mouse Mat, Midi Interface,
10 Blank Disks, Disc Wallet, 4 Books,
ED Superfile, Workbench etc. £569

AMIGA 2000 PACK
A2000 £1099.95
A200 + Stereo Colour Monitor £1579.99
A2000 + 20 Mb H/Disk £1489.95
A2000 + XT Bridge Board & 20Mb Hard Disk £2089.95
A2000 + 40Mb H/Disk £1844.95
A2000 + AT Bridgeboard & 20Mb H/Disk £2289.95

ALL ABOVE INCLUDE SOFTWARE,
MOUSE, WORK-BENCH ETC...

COMMODORE PC STARTER PACKS
PC10 + Double Drive PC 8088 £29.95
PC10 + Mono Monitor £569.95
PC10 + Colour Monitor £729.95
PC10 + Mono VGA Monitor £809.95
PC10 + Colour VGA Monitor £889.95
PC20 + 20 Mb Hard Disk PC 8058 £809
PC20 + Mono Monitor £809.95
PC20 + Colour Monitor £949.95
PC20 + Mono VGA Monitor £998.95
PC20 + Colour VGA Monitor £1088.95
PC30 + 20Mb Hard disk "AT" 80286 £998.95
PC30 + Mono Monitor £1224.95
PC30 + Colour EGA Monitor £1224.95
PC30 + Mono VGA Monitor £1224.95
PC30 + Colour VGA Monitor £1324.95

All prices include VAT & Delivery. All computers are genuine UK specification. All computers include FREE HOLIDAY PACK. Proprietor: Mark A Cameron.

Please make cheques/PO's etc payable to POST EXPRESS
Dept. NCE, Hillcrest House, Suite 3, 49a Vicarage Road, London E10 5EF
Telephone: 081 518 494 9am - 11pm
Phone or write for your free catalogue



Spa Computer Centre



The leading AMIGA
Specialist in Warwickshire

**Massive Stock of
Peripherals & Software
at Amazing Prices!!!!!!!!!!!!**

Authorised **COMMODORE** Repair &
Business Centre
Authorised **ROLAND CM** Midi centre

Main dealers for: COMMODORE,
AMSTRAD, IBM, PHILIPS, ATARI, STAR,
PANASONIC, CITIZEN, and many more.

MAIL ORDER AVAILABLE

A590 RAM & Kickstart 1.3 chips in stock
SALES - LEASE - SPARES

68 Clarendon Street, Royal Leamington Spa,
WARWICKSHIRE

Tel (0926) 337648, 425985. Fax (either line)

NEW

Commodore SCREEN GEMS

**AMIGA™
500**



**SCREEN GEMS is
the only NEW
Official Amiga A500 pack
from Commodore !**

pack includes

- ✓ Amiga A500 Computer Keyboard
- ✓ 512K Random Access Memory
- ✓ Built-in 1 meg double-sided disk drive
- ✓ Superb 4096 Colour Graphics
- ✓ 4 Channel Digital Stereo Sound
- ✓ Speech Synthesis
- ✓ Multi-Tasking Operating System
- ✓ Kickstart 1.3 and Workbench 1.3
- ✓ Three Owners Manuals
- ✓ Extras 1.3 and Tutorial Disk
- ✓ Amiga BASIC Programming Language
- ✓ Notepad Mini Word Processor
- ✓ Commodore Mouse
- ✓ Power Supply Unit with mains plug
- ✓ TV Modulator
- ..and all connecting cables to get you up and running on your home TV set!

plus

- ✓ Shadow of the Beast II
- ✓ Days of Thunder
- ✓ Back to the Future II
- ✓ Night Breed
- ✓ Deluxe Paint II Art Package

plus FREE DIGISTAR pack

10 great software files and accessories worth over £25 - Only from DIGICOM

- | | |
|--------------------------|----------------------|
| ★ Microprose Soccer | ★ Grand Monster Slam |
| ★ RVF Honda | ★ Powerplay |
| ★ Kid Gloves | ★ Tower of Babel |
| ★ Datastorm | ★ Shufflepuck Cafe |
| ★ Dungeon Quest | ★ E-Motion |
| ★ Microswitched Joystick | ★ Mouse Mat |

and exclusive to DIGICOM!!!

F-19 Stealth Fighter

The Ultimate Flight Simulator game from Microprose worth £34.99!

Total package price includes VAT and Next Day Delivery by Courier*
Don't delay - Order now! 24Hour Credit Card Hotline Telephone (0908) 378008

How to Order

By Phone - Call our Credit Card Order line on (0908) 378008 and quote your card number and expiry date along with the details of the goods you require. We accept ACCESS, VISA, EUROCARD, MASTERCARD, AMEX the new Direct Debit cards like Barclays Connect and we also accept Lombard CreditCharge Cards.

By Mail - Simply write down your requirements and send in your order to us by post along with a personal cheque, bankers draft, building society cheque or postal order made payable to "DIGICOM COMPUTER SERVICES LTD".
*Please note: Personal cheques require 7 days clearance before despatch.

Next Day Delivery is Mon-Fri, Saturday Delivery is £3.00 extra

Catalogues!

Ring or write in for our latest Amiga catalogue listing hundreds of products available for this versatile Home Computer. We stock COLOUR PRINTERS, STEREO COLOUR MONITORS, EXTERNAL DISK DRIVES, MEMORY EXPANSIONS, HARD DISK DRIVES, AMIGA BOOKS, FRAME GRABBERS, DIGITISERS, SCANNERS, WORD PROCESSORS, DATABASES, SPREADSHEETS, ACCESSORIES and of course hundreds & hundreds of games and all at well below recommended retail prices!

Service you can depend on!

Digicom offer you the very best in customer after sales support with 12 month warranty on all Computer Hardware. All units are full UK specification with 30 day replacement guarantee on faulty items and FREE collection of the defective units within this period. And should you ever need any technical advice our experienced and helpful staff are available on the telephone or in our showroom. Remember - there are no hidden extras - all prices are fully inclusive of VAT and next day courier delivery.
Prices & Specifications are subject to change without notice E&OE.

only.....

£399

* or spread the cost with our finance facilities - written details on request.

DIGICOM

36-37 Wharfside Watling Street
Fenny Stratford Milton Keynes MK2 2AZ
Telephone (0908) 378008 - Fax (0908) 379700
Showroom Hours - Mon to Sat
9.00am-5.30pm

The Directory!

Out Now!

The essential resource guide to the Commodore Amiga and Atari ST hardware, software and peripherals.

*From this issue **The Directory!** will become the authoritative quarterly publication for Amiga and Atari ST users.*

*Be sure of your copy now, order **The Directory!** from your newsagents . . .*

Price £2.95!



THE AMIGA 500 PC/XT IS HERE



"... The PC Board is indeed a very highly compatible device ..." AUI Dec '90

WE ...

- * Supply MS-DOS 4.01 & GW Basic and Shell FREE
- * Supply extra memory FREE
- * Do not invalidate your Amiga guarantee
- * Are continually improving the product with software upgrades
- * Run a helpline just for you
- * Leave your 68000 processor free for other useful internal add ons.

**"SCREEN HANDLING
IS FASTER
THAN MANY 286 AT's"
AMIGA FORMAT OCT 90**

**Run Professional MS DOS Software
on your Amiga 500 at
a price you can afford**

KCS

**PRICE SLASH - NOW
£299 INCL ...**

POWER PC BOARD

**Support of the A590
H-D and other
improvements now
incorporated
Ring for details**

Why did you buy an Amiga 500?

Of course, because of its superb graphics, music and animation capabilities. However if you want to get serious, you soon realise that it is distinctly lacking in memory and professional software.

Well - they said it could never happen - but it's here at last!

You! In your own home can transform your Amiga 500 into a real IBM compatible with Amiga memory expansion to ONE AND A HALF MEGABYTES.

It's simple - no screwdriver, no soldering iron and no technical knowledge required. Just turn your Amiga over, open the cover, slide the Power PC Board into the connector, close the cover and your Amiga PC/XT is ready. (In other words, no loss of guarantee).

You are now ready to use a wealth of professional MS DOS software at speeds faster than a PC/XT (ind. review), and in colour, with compatibility thanks to Phoenix-Bios.

You can also rely on the correct date and time at any moment in Amiga and MS DOS mode. *Video support: monochrome, Hercules and Colour Graphics Adaptor (CGA) (4 and 8 colours)

* Disk support: internal 3.5" external 3.5" external 5.25" drive. (A590 hard drive now supported)

* Including MS DOS 4.01, MS DOS shell and GW Basic (Market value approx. £130.00)

* Including English Microsoft books + KCS manual + FREE software.

* Further exciting software upgrades in the pipeline

* Available memory: 704KB + 64KB EMS in MS DOS mode, 1 megabyte + 512KB RAM (disk)

buffer in Amiga mode

* No extra power supply necessary thanks to the most modern CMOS and ASIC technology

* OK with TV. No special monitor required

* Price: £299.00 including VAT. Access and Visa accepted

* For export price please contact us

* Trade enquiries welcome (UK - Scandinavia - Australia/NZ and all English language)

Compatibility is excellent but no-one can guarantee every single program available, therefore if your purchase depends on a particular program, please ask us first or send in a copy of the program. (With suitable S.A.E if to be returned). Price subject to change without notice.

BDL BITCON DEVICES LTD.
88 BEWICK ROAD, GATESHEAD,
TYNE & WEAR, NE8 1RS ENGLAND
TEL: (091) 4901919/4901975
FAX: (091) 4901918

KCS Power PC Board AMIGA 500

THE BEST OF BOTH WORLDS

What the critics say



INDEPENDENT EDITORIAL REVIEWS

"Standard XT/AT software runs with no foreseeable problems and 704K at its disposal. All normal PC function keys are also emulated, so you can run through all those bewildering Word Perfect key combinations. . . So, if its a cheap PC you're after, don't buy one. Buy the KCS Power Board instead"

Amiga Format
Oct 1990

➡ What our customers say

KILOWOOD LTD

*Sales & Marketing Consultants
Electrical & Mechanical Engineers*

Tel: (0793) 875735
Fax (0793) 871277

36 Ashburnham Court
Swindon
Wiltshire
SN5 8RA

23 Aug 1990

Bitcon Devices Ltd
88 Bewick Road
Gateshead
Tyne & Wear NE8 1RS
England

Dear Sir/s,

Ref: KCS Power PC Board

As someone who has used the Amiga 500 for both business and pleasure applications and who is aware of the limitations on the availability of suitable business software, I was immediately interested in the above product. It seemed like the ideal solution: no second machine to take up valuable space, retention of the superb graphic and video capabilities of the Amiga, needed for part of my business and the chance to make use of the huge range of business software available for MS-DOS machines.

Too good to be true, I thought, especially as the price is quite a lot less than even a DIY PC-XT alone!

Your advice and assistance on the telephone, prior to placing an order, was certainly of a standard that most companies have long since forgotten and the speedy dispatch of the goods was most impressive.

I fitted the board within 5 minutes and then spent a further 15 minutes reading the manual. A further 30 minutes was then spent on setting up the software to suit my particular requirements. This process was simple and trouble-free.

Hey Presto! - an IBM compatible machine sprang to life. Now for the acid test - the software.

A colleague with many years experience in the PC world had brought his disk collection along and we started the process of trying to make the board fail! No chance - we ran all sorts, amongst the programs tried was Autoroute 1.2, Word Perfect 5.1, Norton Utilities, PC Tools and Flight Simulator 4 (latest version). We also tried many PD and Shareware titles. Everything functioned perfectly, including the disk drives, video and printer ports. We then loaded Procomm, connected a modem and proceeded to download more PD software from various bulletin boards.

All in all, I can only say that I am more than satisfied with this superb product and I would recommend it to anyone who requires MS-DOS on their Amiga 500. You may use this entirely unsolicited letter for any purpose in connection with the promotion of your product.

Yours most sincerely
Nell Bristow

Greensborough
Victoria, 3088
Australia

11 Aug 1990

Bitcon Devices Ltd
88 Bewick Road
Gateshead
Tyne & Wear
NE8 1RS
England

Dear Sir/Madam

I would like to thank you for the delivery of the KCS PC Power Board. It has been installed in my computer and is working satisfactorily. It has allowed me to have the best of both worlds at a very cheap price.

I am looking forward to the upgrades in software as they are developed. I am looking forward to the hard disk software.

I was a bit apprehensive about importing goods from overseas suppliers but your prompt service is appreciated and I thank you for that. I am looking forward to hearing from you again.

Yours Faithfully
BS

31 Dale Walk
Hay Mills
Birmingham
B25 8NH

Bitcon Devices Ltd
88 Bewick Road
Gateshead
Tyne & Wear
NE8 1RS
England

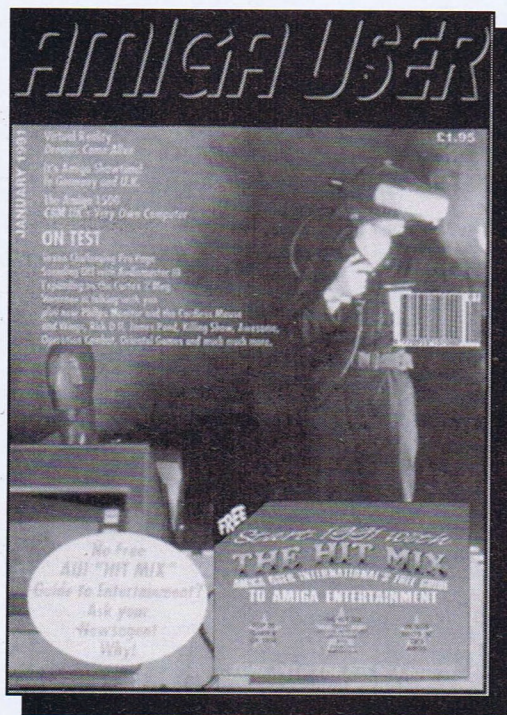
Dear Sir

I am writing to ask if it would be possible for you to send me a registration form for the PC board, as I seem to have misplaced mine! Otherwise, thanks very much for an absolutely fantastic product, one which has, in the space of only two weeks, proved its worth. Other programs not on the list which work are: Quattro, Fleet Street Publisher and Printmaster Plus. Once again, thanks very much.

Yours sincerely
K Whitchurch

Bitcon Devices Ltd, 88 Bewick Road, Gateshead NE8 1RS England
Tel: 091 490 1919/1975 Fax: 091 490 1918 Helpline 091 490 0202

SUBSCRIBE TODAY!



For
Convenience
To Avoid
Disappointment
And
Save Money

Direct to your door at
NO EXTRA COST*
- we pay the post!

Never again worry
about your local
newsagent selling
out.

Avoid any price
increases for the next
12 issues by
subscribing.

Simply fill in the coupon below and send it with your remittance to:
**M.S.M. Subs. Dept., Lazahold Ltd., P.O. Box 10, Roper Street,
Pallion Ind. Estate, Sunderland SR4 6SN.**

The first issue of a new subscription to be delivered will be one or two
issues after the one you placed your order in.

*Overseas prices include postage

Please send me one year's subscription to **Amiga User International**. I enclose
my cheque/money order for £..... made payable to MCPC
LIMITED or debit my Access/Visa card.

Card No.

Expiry date

Name

Address

Postcode

(Please enter postcode to ensure prompt delivery)

Signed Date.....

AUI 02 91

**U.K.: £23.50, EUROPE: £45.00;
REST OF THE WORLD: £65.00**

OVERSEAS RATES INCLUDE AIRMAIL SERVICE

WANTED



DEAD
OR
ALIVE

USE YOUR VOICE
TO OUTDRAW THE
GUNFIGHTER

CASH PRIZES

0898 31 35 96

INFODIAL POBox 36 LS1 4TN Call charges 33p Per Min Cheap 44p Per Min All Other Times

MAKE YOUR AMIGA EARN!

Yes, making money with your Amiga becomes incidental when you know how. Your micro is, if only you knew it, a gold mine. The size and make is irrelevant. Make the initial effort **NOW** by starting your own

HOME BASED BUSINESS

This may be the most important move you will ever make!

REMEMBER: You'll never get rich by digging someone else's "ditch". Anyone in the country, including YOU, can become very rich in a relatively short period of time just by doing a few basic things! It's more rewarding than playing games. The benefits are many and varied. Full or part time. For **FREE** details send S.A.E. to:



HOME BASED BUSINESS

31, PILTON PLACE (AF 16)
KING AND QUEEN STREET,
WALWORTH, LONDON SE17 1DR

Magnetic Media

AMIGA PUBLIC DOMAIN
LOOK!!!

"HUNDREDS OF TITLES" — "STARTER PACKS"
"FAST, RELIABLE SERVICE"

NOW ONLY — £1.80 each or £15.60/10 inc VAT

A small selection from our vast range

359/360 Star Trek 3	1Meg
443 Coma Demo	1 Meg
444 Dope Intromaker	0.5 Meg
445 Magnetic Fields Music	0.5 Meg
453 Cryptic UK Demo Comp	0.5 Meg
459 Time Circle Demo	0.5 Meg
SPECIAL OFFER! ALL & DISCS - £11.50	

AMIGA Batpack + 10 blank discs	£379.95
AMIGA Flight of Fantasy + 10 discs	£379.00
STAR LC-10 Printer & Lead	£174.95
STAR LC-10 Colour & Lead	£224.95
STAR LC24-10 24 Pin & Lead	£254.95
NEC P2 Plus 24 Pin & Lead	£339.95
Epson LX 400 & Lead	£199.95
Epson LX 850 & Lead	£254.95
Epson LQ 400 24 Pin & Lead	£269.95

Courier Delivery, 1 item £15, 2 items or more, £17.50 per item.

Posso Deluxe Storage Box, inc. P&P £19.95
512k memory upgrade including P&P for £54.95

VICTORIA ARCADE, ALDERGATE, TAMWORTH, STAFFS S79 7DL TEL: 0827 59566

Postage inc. except for Hardware, as stated.

AMIGA REPAIRS & SPARES

SPARES:

8367 Agnus	£34.00	6570-036	£16.00
8371 Fat Agnus	£49.00	Rom V1.2	£32.00
8372 Fatter Agnus	£62.00	Rom V1.3	£32.00
5719 Gary	£17.00	8520 CIA	£16.00
8364 Paula	£40.00	5721 Buster	£16.00
A1000 Rom Odd	£25.00	68000 MPU	£24.00
A1000 Rom Even	£25.00	41256 RAM	£4.00
MSM 6242 Clock	£12.00	LF347	£2.50
		8362 Denise	£29.00
		414256 RAM	£9.00

Many other spares available

ACCESSORIES

Amiga 500 Screen Gems Pack	£370.00	A500 Internal Drive	£70.00
Cumana CAX354 3.5"	£80.00	512K RAM Plus Clock	£45.00
External Drive 3.5"	£70.00	A500 PSU	£50.00
		Amiga Mouse	£35.00

All prices include postage and packing
Fixed Price Amiga Repairs £40.00 - (Does not cover keyboard or drive faults)
3 months warranty, 1 week turnaround

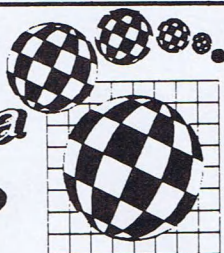
ACE Repairs, Dept AU, Outways Farm, Pelynt, Looe,
Cornwall PL13 2NW



☎ (0503) 20282



? ?
*Do you get
the best out
of your Amiga*
? ? ?



Amiga Amiga Amiga Amiga Amiga Amiga

The U.K. Amiga Users Group is the Largest Amiga only user group in the world. We are now in our fourth year and are the most established and experienced Amiga user group in the U.K. We have over 1,500 members and are able to offer an unrivalled level of support. Our members receive a 60+ page bi-monthly newsletter packed with articles of interest at all levels, we have a massive library of public domain software and run an Amiga only bulletin board. We offer our members superb discounts on all hardware, software and books. The U.K.A.U.G. is the group to belong to regardless of your age or level of experience, our aim being to provide support and encouragement to everyone. Why not join us and start to appreciate what Amiga computing is all about.

For more info,
send a stamped
addressed envelope
or telephone...

The U.K. Amiga User Group
144 Charles Street
Leicester LE1 1LB
☎ (0533) 510066



**Your computer is
the only teacher
which YOU CONTROL!**

**Whatever your age, whatever your subject
- let your computer help you learn.**

Subjects include ...

French, German, Spanish, Italian, English
History, Geography, Science, General Knowledge,
Football, First Aid, Sport, England, Scotland,
Natural History, Junior Spelling and Arithmetic

Available for most popular
home & business computers



*Kosmos are specialist producers of Educational
Software designed to help you enjoy learning from your
computer. Our programs even allow you to add your
own lesson material.*

Write or telephone for a FREE 20-page BROCHURE
of our Educational & Leisure software
Please state your computer type

Kosmos Software Ltd, FREEPOST (no stamp needed)
DUNSTABLE, Beds. LU5 6BR
Telephone 05255 3942 or 5406



KOSMOS SOFTWARE



Now The Turkey's Gone . . .

From £1.99 to £1000's, Mike Nelson advises on what to do with your post-festive cash

Christmas, of course, is over, and it's now time to have a think about a little postcelebratory spending. Depending on your budget, AUI has a few ideas about what you may like to convert the loot into as a late gift to your beloved Amiga.

We'll start with the cheap and cheerful things and for those who had a totally miserable time, some blank disks (35p a time) or a mouse mat (£3 - £4) or even a mouseholder (£1.99) to stick onto your purchase with all the gay abandon you can muster and accept our sincere condolences. Dream on for there are some really nice things to come.

If you were unfortunate enough not to get "Lemmings", then maybe you should hot foot it down to the shop and check out the Terrapins or Geordie footballers who cry a lot, this has to be one of the most endearing games yet on the old Amy. I think its appeal is reminiscent of the 64's "Jumpman", an Epyx (remember them?) platform game, in that the graphics are not the best in the universe but the gameplay is brilliant. The little cry of "Oh No!" before the Lemming explodes brings a lump like a turnip even to the most resilient of throats. Priced at about £25 this shouldn't do too much damage to the finances.

AmigaDOS is a powerful beast but looking through the manuals you get with the computer will only whet your appetite for the delights within. Whoever invented templates for DOS commands is probably sitting back smugly reflecting on a prize piece of retrograde design, rivalled only by a DHSS form, but Bruce Smith and Mark Smiddy's new book is about as comprehensive as you can get without crawling inside your Amiga. "Mastering AmigaDOS 2", Volume 1 is £21.95 (with a free disk) and number II will set you back £17.95, and very good value they are,

being right up to date with version 2.0 of the operating system.

Thirty pounds will actually buy you a surprising amount of hardware, not least an extra half meg of precious RAM, and this is well worthwhile. More fun again is a sound sampler, costing from £29, and there are several to choose from so have a squint through the adverts to suss out the one for you.

Getting up to the £70 mark and we're into the realms of a second disk drive and this is such a luxury after juggling with Workbench and copy disks that I will say no more, except that bear in mind these were £200 a few Yuletides back. That's progress for you.

Look, you really don't want that BMX bike, so convert it into £130 and get into digitizing with Rombo's Vidi-Amiga, as they're offering the magic box and software, with a copy of Photon Paint chucked in for good measure. We reviewed it a few months back and were well impressed with it, but for the best results, sell your brother's bike and get the RGB-splitter as well. Then, borrow your granny's CamCorder and have some real fun digitizing the pictures from the magazines under your big brother's bed. Funny place to keep AUI, but each to their own.

If you can stop drinking in the New Year, you may save enough cash to get an accelerator board really to give your Amiga more pace than an Australian bowler. Bytes and Pieces lead the field in this department and their 68030

boards for the A500 and 2000 start at about £375. How much do you drink, for Pete's sake? We hope to take a long, close look at this kit in the very near future (Oh, the trials of this job), but we anticipate a five fold increase in the processing power of the Amiga, on average.

If you're a RAM freak and can live without the speed, maybe the Inmate is for you, as this is a board for 8 megs, a co-processor socket and SCSI interface for a hard disk. Go on, treat yourself, it's only money and interest rates are bound to come down sometime before the end of the century. If Chris Wright's had a pleasant festive time, he may even sell you the RAM chips and drive to go in it, as well.

If you want PC compatibility, try the KCS board reviewed a couple of months ago by Jonathon Living, as this looks to do the job quite nicely. You'll have to commit around £300 for it but you get two computers for the price of one (and a half), and you can still play Lemmings.

Christmas is a time of extremes, and so let us spare a thought for those poverty stricken folk (the poor get poorer, and the rich get presents . . .) who simply had to make do with an A3000 from their excessively wealthy relative. Yes, for the princely

figure of over two grand you could take a giant leap into AmigaDOS 2.0 with all its frills, but the 68030 still only runs at 25 MHz!

On that high note, it seems appropriate to leave this dream world and get back into a reality scenario, but we hope we have shown that there is something for everyone

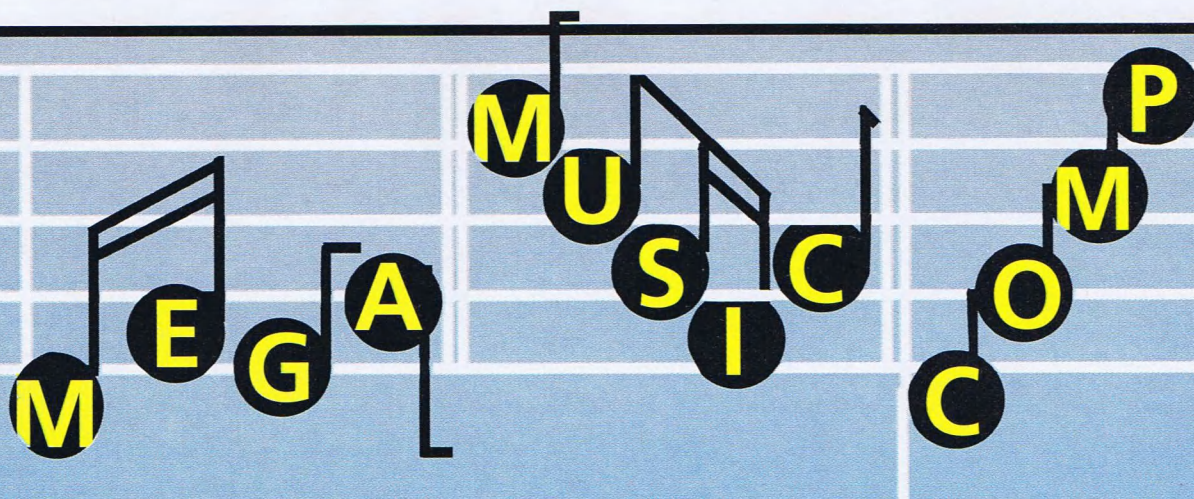
on the market, from those with a bulging bank balance to the unfortunates

among us whose debts rival Brazil. By the way, Happy New Year!

"Whoever invented templates for DOS commands is probably sitting back smugly reflecting on a prize piece of retrograde design, rivalled only by a DHSS form."

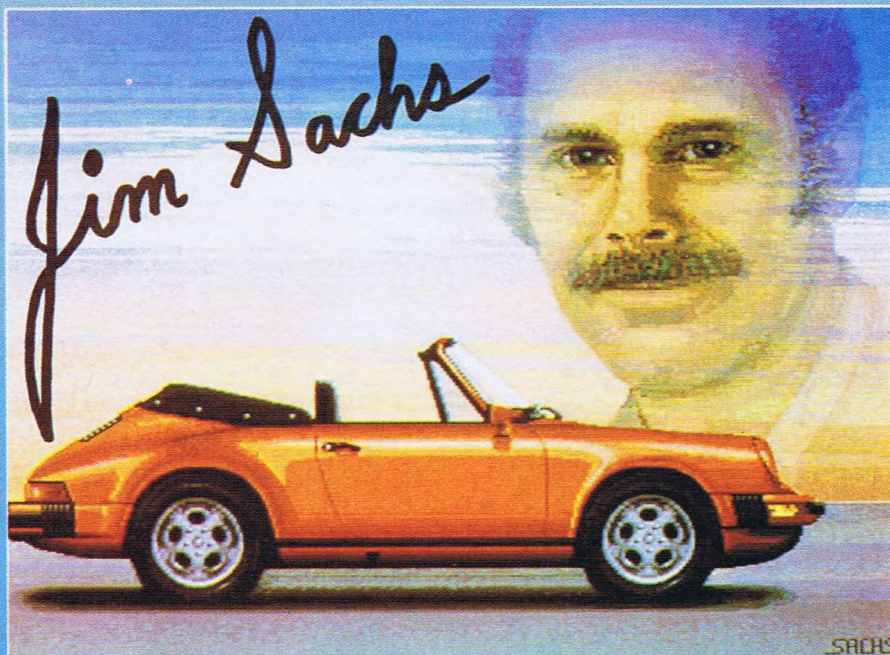
"If you can stop drinking in the New Year, you may save enough cash to get an accelerator board."

M.N.



WIN ONE OF THESE GREAT PRIZES!!

OXXI'S
Audiomaster III •
Microdeal's
Mastersound
Electronic Arts
De-Luxe Music
Construction Set
And 12 Consolation
Prizes of
OXXI'S JIM
SACH'S
Signature Collection
1991 Calender.



3 superb music packages for the amateur musician. Answer the following questions on a postcard, or this page, naming which packages you would like to win, and stating why.

1. What does MIDI stand for ?
2. Who is AUI's resident: music expert ?
3. What is another name for:
- a) pitch
- b) loudness

I would like to win the prizes in this order:

1) 2) 3)
 because (no more than 15 words)

Name

Address

Send your entries to: **AMIGA USER INTERNATIONAL, MEGA MUSIC COMP, Finsbury Business Centre, 40 Bowling Green Lane, London EC1R 0NE**

A photocopy of this page will suffice if you do not wish to destroy your Amiga User International Magazine.

RULES

No employee of participating companies or Maxwell Specialist Magazines are eligible to enter. The Editor's decision is final and entries must be returned by the 31st March 1991. Prize winners will be drawn from a hat containing correct entries. No cash alternative can be offered for prizes.

AMOS Special

AMOS is powerful games programming language - MARK SMIDDY looked at some of the games it has helped create

Jungle Bungle.

1Mb only, requires mouse
AMOS Licenceware, £3.50

This is a graphic adventure game that almost never was. When *AUI* spoke to author Len Tucker about it, the charming and talented Welshman commented, "I was that close to leaving it in the kid's disk box." Adventure experts Sandra Sharkey and Pat Winstanley found only one word to describe it, "Brilliant!"

The scenario goes something like this. You were flying the AMOS banner over some unnamed and unexplored jungle, located at some hot and humid latitude, when the engine shuts down. Luckily you manage to bail out and come to a safe landing. But now what? Can you get out of the jungle alive? How long will you survive without food or water? Will you be ravaged by lions or attacked by hostile monkeys? Will you be able to help the mysterious witch doctor? And just what are the natives planning for supper tonight? So the scene is set for a visual treat with over 100 exotic locations and some mind bending puzzles.

That could describe any one of dozens of pot-boiler adventures which appeared a few years ago. But this one is very different. Rather than the usual technique of having to type your every command, Jungle Bungle works on a Hypercard or Psynosis Barbarian-like



setup. If you want to examine something for instance, you click on the "eye" icon, then click on what you want to examine.

Unlike what may be expected from a budget title, much of this is not for show - over 90% of the locations have active components which can be examined, picked up, used and so on. Spot animations like the mischievous monkey and grizzly lion feature throughout the game, which should prove irresistible fun for children from 8 to 80.

Jungle Bungle says a lot about AMOS. But it says much more about one man's genius, in creating a game that is not only visually impressive - the graphics bear

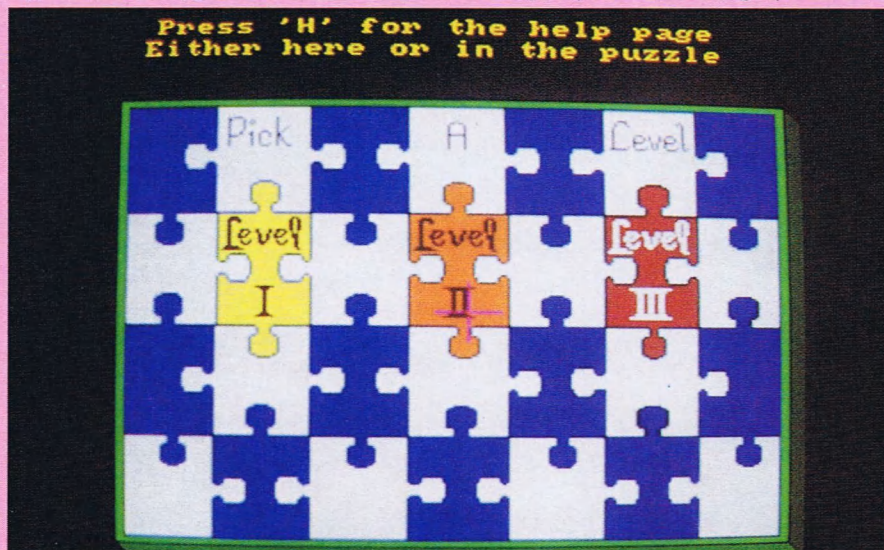
testament to that - but also challenging and enjoyable. Being Licenceware though, Len only makes a very small royalty on every copy sold by the library. If every *AUI* reader bought it (the price is hardly prohibitive) Len might be willing to develop more of the same. Nice one, we want more. Highly recommended.

Thingamajig.

All Amigas, requires mouse
AMOS PD, £2.50

This is another offering from "Sparx" alias Len Tucker of Jungle Bungle fame. Like Jungle Bungle, this is also of the highest quality, and although firmly aimed at children, has won the hearts of many an adult player. As may be suggested by the title, Thingamajig is a jigsaw puzzle. But this is a jigsaw with a difference - because it was designed to help young minds match shapes and patterns.

Each puzzle is made from dozens of pieces and each one is a different shape and size. This differs from the conventional jigsaw where each piece is a fixed size and the puzzle solved by bashing the pieces together to make a picture. In Thingamajig, the picture is already displayed as an outline - all the child has to do is pick up each piece and fit it into the appropriate place.



In case the player gets stuck, the game even features a help function which shows where the piece should go. Scoring is calculated from the time taken to complete a puzzle minus the number of times the help function was used. Recommended.

Colouring Book.

**All Amigas, requires mouse
AMOS PD, £2.50**

The name Trevor Prince may not instantly ring any bells, but I can confidently predict, his Colouring Book program will be playing on many new machines after Christmas - keeping parents happy and the kids quiet. This is one of those simple programs which no commercial software house would ever consider, yet it fills a niche in a largely untapped market.

As the name suggests, it is a computerised version of a colouring book. The child is presented with a screen where any one of 16 colours can be chosen from a palette. Clicking the mouse takes the child to a pre-drawn picture which they can colour and re-colour until their heart's content. Themes for the beautifully drawn pictures are taken from well-known nursery rhymes like we-Willie-Winkie and Humpty Dumpty. At any stage, the pictures can be saved to disk for later retrieval or printing.

Colouring Book saves all the messing around with conventional paint boxes,

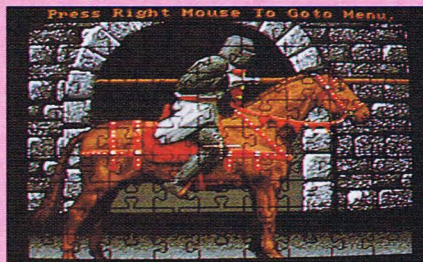
helps teach mouse and colour coordination and allows the child to explore their creative potential. In tests 9 out of ten children (whose parents expressed a preference) said they preferred it to whiskers. Highly recommended.

Pick-a-Puzzle.

**All Amigas, requires mouse
AMOS PD, £2.50**

Is there no stopping Len Tucker - maybe this should be the Len Tucker column? This latest offering from the Sparx stable landed at **AUI** shortly before the final release version went out for duplication. The idea is very similar to Thingamajig but this game is meant for adults and clever dicks.

More addictive than its predecessor (if such a thing is possible), this game is based on the more conventional type of jigsaw. As with all Sparx' releases the graphics are excellent throughout. At the simplest level, the player is provided with a jigsaw grid into which the pieces of the puzzle are fitted. This may sound easy - but take it from me - this is harder than it



appears. On level two, the "jigsaw" disappears and on level three the pieces start rotating! Pick-a-Puzzle comes with eight predefined jigsaws with separate data disks already available. Jigsawphiles might be interested to learn that a construction set is in the pipeline. Recommended.

M.S.

Thanks!

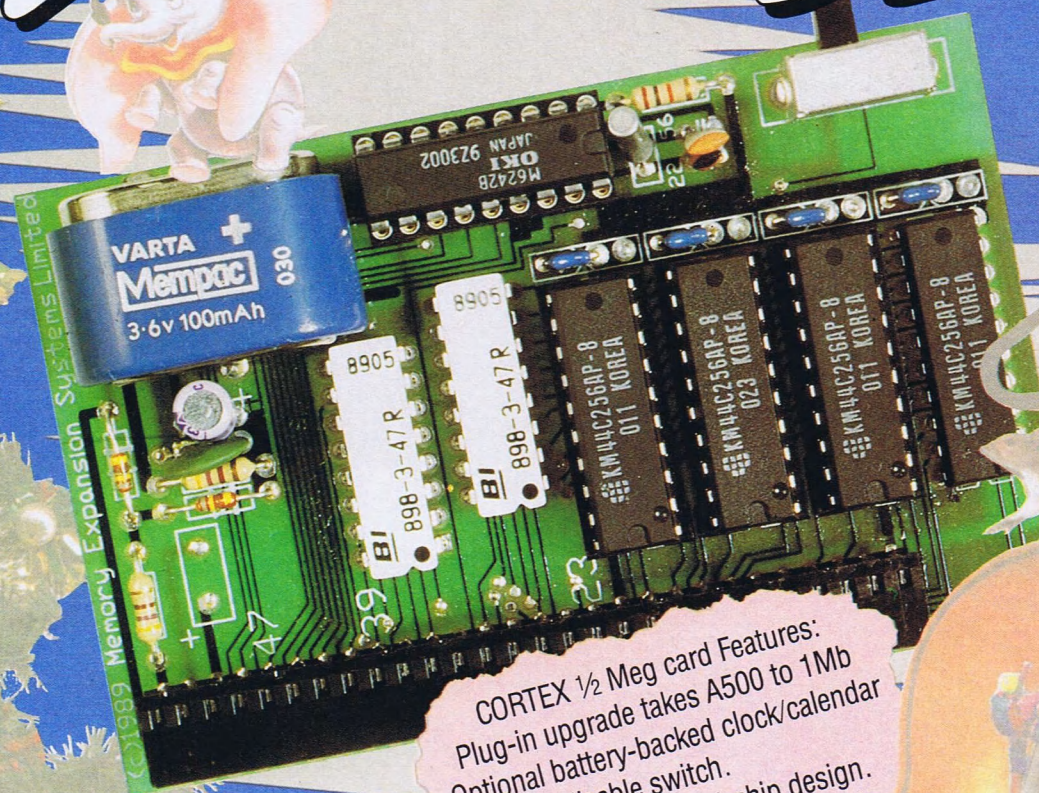
This selection came courtesy of Sandra Sharkey's amazing AMOS PD and Licenceware library. Sandra is a big fan of AMOS and has the largest selection of AMOS PD and licenced games anywhere. As an added bonus the selection has recently been serviced by the indefatigable Martyn Brown - alias Spadge - improving the quality of presentation way beyond what could normally be expected.

**The AMOS PD Library, 25 Park Road,
WIGAN, WN6 7AA
Tel: 0942 495261**



1/2 Meg Expansion £32

INCL. VAT
& P&P



CORTEX 1/2 Meg card Features:
Plug-in upgrade takes A500 to 1Mb
Optional battery-backed clock/calendar
Enable/disable switch.
Super low-power 4-chip design.
Fast-mem/Chip Mem compatible
3 year guarantee.

£32

CORTEX

Send cheques to: Dept
Memory Expansion Systems Ltd.
Britannia Buildings, 46 Fenwick Street,
Liverpool L2 7NB
(051) 236 0480



(051) 236 0480 • 24 Hour Sales
(051) 227 2482 • 24 Hour Fax

Amiga Answers

Andy Eskelson searches out the answers to your tough technical questions

Dear AUI,

I have been using an Amiga B2000 for 18 months having upgraded from an A500, the B2000 is configured with a non-autobooting 60 meg Seagate Hard drive, two 3.5 inch floppies and an 8up ram card with 2 megs installed.

I use the system for business purposes everyday for Spreadsheets; Wordprocessing; Accounts and CAD, however I find it an absolute pain changing programs which require different printer preferences setups.

Is it at all possible to write an IconX operated script file to alter preferences? Thus saving me time and effort rebooting from different floppies to set different printer requirements in the system configuration, every time I want a printout from a particular program.

**Marston Hart,
St Leonards-on-Sea**

Dear Marston,

The answer is yes and no. In order to do this you need to get hold of a PD program called SetPrefs. This is a nice utility that allows you to enter a command in the CLI thus: "SetPrefs setup1"

setup1 is a renamed system-configuration file that is generated by Preferences You have to go through all the setups that you want first, but once done that's all there is to it. You can call the setups any name you like i.e. BloggsPrinter or anything that takes your fancy. You can use IconX in the normal way with this command.

Dear AUI,

I have recently purchased an Okimate 20 printer and after reading your informative article in **AUI** Vol4 No6 I thought I might write to you for some professional advice.

In your article you said it was possible to adjust the printers line feed from 36/216 of an inch to 34/216 by

editing the printer driver's "1B2224" commands to read "1B3322" I have experienced a problem with this as I am running WB 1.3 and the Okimate 20 printer driver for that version does not have the above commands.

After searching through my disk collection I found an Okimate 20 printer driver for WB 1.2 which caused a Guru when I tried to print with it, before and after changing the control commands.

Would you happen to know the appropriate control commands for the printer driver version 1.3 of workbench?

I would be endlessly in your debt if you could pass this information on to me as it would greatly enhance my printouts!

I have a tip on using the printer for you - I have printed this letter on fax paper which is relatively cheap to buy and I think gives a fairly good quality of printout.

**Simon Chandler,
Cardiff**

Dear AUI,

While reading **AUI** Vol4 No6 I was very interested about your article concerning the Okimate 20 colour printer. I was so interested that I bought one.

I took note of the dodgey form feed, and I thought that I would have no problem solving it, with the advice that you gave. Unfortunately I have found out that the Okimate driver supplied with WB 1.3 has been rewritten and therefore does not contain the command "1B3324"

I have tried to get a copy of the 1.2 version of the Okimate driver, but my attempts have been far from fruitful. I even got the Okimate 20 colour printer demo from Softville PD which contained the 1.2 driver but it did not print, never mind solve the form feed problem.

Therefore I consider you as my last hope. I have enclosed a blank disk on which if you would, copy the reconstructed 1.2 version of the Okimate printer driver.

**A. Wright,
Chesterfield.**

Dear Simon and A. Wright,

The 1.3 drivers are different to the 1.2 drivers and as such they do not contain the same commands, so the line feed fix does not work, sorry there is nothing that you can do about that. There are several notes in the books about narrow lines, and the manual suggests selecting custom paper size in preferences, this can overcome some of the problems.

You could write your own driver, not so hard as it sounds; there is a PD utility called PrtDrvGen. It is a bit slow and long winded but I have used it occasionally and obtained reasonable results from it.

I WILL NOT supply copyright software sorry, it's illegal!!

Dear AUI,

After the favourable review of the Okimate 20 printer in your magazine I purchased one from Mr Diamond in Pool from my Amiga 500.

However I discovered the plug in module supplied was for a serial connection and not the parallel connection referred to in your review.

I queried this with Mr Diamond of Poole and he said all his stock was of the serial connection and this was satisfactory. However I would like to know whether there is any disadvantage and if so how could I purchase the parallel cartridge.

I would like to ask also if the purchase of additional 1/2 meg of internal memory invalidates the warranty of the Amiga 500. I am thinking of purchasing the "own brand" of 1/2 meg internal together with the external drive from Mr Diamond.

I would like to say how helpful your magazine has been in my early home computing experience, and look forward to your reply.

**Keith Chambers,
Poole**

Dear Keith,

There is no problem with the serial interface, make sure that you select the correct baud rate and select the correct flow control method. The manual describes the settings. Use preferences on the Amiga to set the speed and flow controls, and also to set the serial interface option. Select save and then reboot and all will work fine.

The only problem with the serial interface is when you also want to connect something else to the Amiga,

say a modem. All you can do then is buy a switch box and remember to switch the correct device in line when needed!

The half meg of ram will not cause any problems provided its plugs into the trap door under the Amiga.

Good luck with your new purchases, you will find the extra memory and extra drive a great help.

Dear AUI,

I must have a hundred questions I would like to ask but in answering one of these in this letter you might help me to answers for the others.

Firstly, on hardware, I have been using an old telly for a while now and I would like a monitor but money being tight I thought it might be a good idea to get a new telly with one of those Scart connectors, as I was led to believe that it is the demodulator thingy that loses the picture quality. If this is so how would one compare to a monitor?

Secondly, I can have the use of one of those printers that come with an Amstrad PCW9512 but it has some weird kind of connector on its lead. Is it usable and if so where can I get a lead from to plug it in? Or how do I make one if no one else does?

Lastly, I feel that I could have more fun and learn more quickly if I were in a user group and wonder if anyone knows of one that meets in my area.

I have been reading a few Amiga mags for a while now and this is my first letter to one, I chose to write to **AUI** because I think it is a little better than the others but even so for my taste I would prefer less of the shoot 'em-up games reviews, there are plenty of mag's doing that. I do not object to reviews of games, some are quite entertaining and original, I have a few myself, but a lot are just the same game with slightly different pictures.

**Gary Byatt,
Stoke-On-Trent**

Dear Gary,

The telly versus monitor is an interesting question, as it depends on the telly! If you are talking about a small screen telly then the quality will be reasonable. However the monitor will normally beat it hands down. Another point is that it is possible to buy a tuner unit that will convert your monitor into a telly! As always 'yer pays yer money and takes yer choice'.

The printer is out as far as I know. Amstrad control the printer with the electronics in the computer. That means that the printer does not understand how to print unless it is connected to the PCW!

User groups are another matter, keep an eye on the group lists in magazines, and try ICPUG and the AUG, both advertise in **AUI**.

Dear AUI,

I am an art student in the last year of my A levels and for part of my course work I am writing a thesis on computer art and animation. I need to know whether there are any art galleries which exhibit computer art, I need to know the main artists and what their work is based on etc. I would be grateful for any literature you could send on this subject.

**David Banner,
Rhondda,
S. Wales**

Dear David,

I do not know of any galleries that are showing computer art, but there have been one or two exhibitions. One of the best known art events in this country is the competition run by the Amiga Centre of Scotland, and there are thousands of examples of computer art in the various PD libraries, why not look at a few?

Don't forget that the artwork that is used in some of the games software is an equally valid source of material, some of it is outstanding.

Dear AUI,

I am planning to buy an Amiga for use in the production of videos. It will be used to title camera video and to produce business graphics, and animations to work on digitised images.

I want to spend as little money as possible for the initial system and would like to know what advantages the B2000 has over the A500 in real computing power. I know that it has expansion slots but I have no need of them. Would an A1500 with extra ram, which I will need anyway, be as good?

My real query however is in regard to the variety of ram types. I have seen three in advertisements, Fast, Graphic, and Chip, could you explain the differences between them and tell me how much of each can be had within the 9Mb total?

I am also in a quandary about hard drives. The 590 seems a good buy, especially when the 2Mb of ram is included and if two can be daisy-chained? Also the 590 seems to be very slow, its quoted speed is only 80ms whereas other drives quote 40ms and even 28ms. Please advise on the merits or otherwise of the 590.

**G.D. King,
Torrevieja,
Spain**

Dear G.D. King,

Firstly the A1500 is a 2000 machine but fitted with two floppy drives, or do you mean the Checkmate reboxed system?

The B2000 is the same as the A500 in terms of raw power. However I would always go for the 2000 in your case as

the expansion capabilities are very, very useful. However you have to work within your budgets. The Checkmate with extra ram is fine, but what you must remember is that some ram expansion systems do things in rather odd ways, and they might, and it is only a small risk, not work with all software.

Ram types. . . Uggg, I do wish adverts would be clear about this matter. . .

Graphic and Chip are one and the same, fast is real expansion ram. . . let me explain. . .

The Amiga has two things that want access to the memory, the special sound and graphics chipset, and the 680x0 processor.

Sometimes the processor wants access to the same memory as the chipset and this causes clashes. If we talk about the older series of Amigas, the custom chips could access 512K of memory only. This is the first block of memory with which the system is fitted. If the processor wants access at the same time as the chipset, the chipset wins and the processor is made to wait.

This memory is known as CHIP memory because the custom CHIPS can access it. It is also known as Graphics memory and Sound memory and SLOW memory (because it can slow up the processor).

In another area of the Amiga's memory map, the expansion memory is located, this memory is exclusively used by the processor; the custom chips can still access the CHIP memory, but not the expansion memory. The processor is not slowed down when using expansion memory so this memory is known as FAST ram, or Expansion ram.

There is a complication, (life is never simple!) the 512k memory module that plugs into the trapdoor of the 500 is SLOW memory. This is because it is on the same bus as the CHIP memory, and when the chipset accesses its 512k of memory this additional memory is locked out from the processor, hence this memory is known as SLOW ram.

The 590s are a very good buy as you say. You can plug other SCSI devices into them, but I doubt that daisy-chaining will work in respect of the ram. Someone might have tried but I would not even attempt it.

Access time is not too important, 80ms is LESS than one tenth of a second, and unless you are going to access hundreds of separate files then don't worry about it. If speed is very important, put the files in a big ram disk and work on them there. (That's exactly what I do when using the C compiler, there is nothing faster than the ramdisk.)

Finally just to complicate things even more there is a new chipset now out. This has increased the total addressable CHIP memory to 1Mb, this gives you more memory for graphics etc, all of this memory is of the SLOW CHIP type.

WRITE TO REPLY

This is where you get your chance to speak – or write – your mind about what's bugging you – or your computer. Bud Vennos fields the bouquets and the brickbats. New to the section is STAR LETTER award of £50 worth of Amiga Goodies to the sender of the best letter. Get writing!



Dear AUI

In the November issue of **AUI** there was an article on Commodore's Business Machines. In this article you asked a reader to write in and tell you if they saw the Amiga 1500 inc. VAT for under £1000.

In the December issue on page 50, Holobyte have advertised the Amiga 1500 priced at £949 including VAT. Do I get a prize? Even if I do not **AUI** is still a great magazine so keep up the good work. The article had a slight flaw, the Amiga 1500 does not come with a hard disk.

Martin Smyth, Edinburgh.

Dear Martin,

Well spotted! As you were the first reader to report the find, probably the bargain of the year, you will receive a prize – the STAR letter prize. It is in the post and you should be receiving it soon.

*As you pointed out the Amiga 1500 does not have a hard disk drive, sometimes when one is reporting new advancements there is some confusion over actual shipping specifications. No doubt, you, and other readers, will have benefited from December **AUI**'s in-depth look at the Amiga 1500.*

MORE SERIOUS ... LESS FUN

Dear AUI

When I first bought the Commodore 64 I used it for the same purposes as most others who bought it – solely for games playing. But, as time passed I lost interest in games, as they all seemed to follow the same themes, and all were too easy. I decided to start programming my own. I found a magazine which ran monthly ar-

ticles on BASIC programming – I typed them in, debugged them, but I learnt. When I had learnt BASIC I found it too slow, so I tried assembly language. Again the magazine was running a series on assembly language. I learned from that too.

Therefore, may I suggest running some programming articles every month for the Amiga in **AUI**. I would especially like to see a running series of articles, that when typed in create an arcade game, or a series of handy subroutines in BASIC/ assembler.

Secondly, I think that you have too much advertising, I stopped buying a previous magazine for this very reason.

On games reviews, I think that **AUI** has too much games, and at most times can be called a games magazine. Some people did not buy the Amiga just for its games!

Mr A. Tulip, Mansfield.

Dear Mr. Tulip

*Many Amiga owners wish to program, not because they have great illusions about writing games and becoming rich, many who wish to do so, like yourself, are uninterested in games. The reason is because they like to be able to command further understanding and enjoyment from their hobby. **AUI** will be continuing its series on programming – probably more QUADS. Games programming is a little more difficult because of the large amount of DATA to be typed in, and usually errors occur, and 1Mb is needed to assemble. To do that properly a Coverdisk would need to be included, and for such a relatively short article a huge cost would have to be incurred.*

Advertising is the fundamental to the financial viability of virtually any magazine in whatever industry, but don't be put off. The number of editorial pages rises proportionally to the number of advertising pages. In general for a well-beloved publication, more advertising pages means more income to spend on more editorial pages, while less advertising means fewer editorial pages. Month by month a jug-

ling act is done between the editorial and advertising pages to allow the magazine to fit into its planned size, which is calculated a few months in advance depending on estimated advertising pages. Advertising also makes people aware of what is available, and allows them to shop around via mail order. Many people like adverts. Some claim to buy magazines for nothing else - which is a good thing when you look at some magazines!

*Relative to all other Amiga magazines **AUI** has a modest games section, and it is regarded as an extra feature in the magazine. If it were omitted it would not necessarily mean that more application reviews would be included. If it were increased it would definitely not take away from the current pages allocated to hardware and application coverage. Many of **AUI**'s readers are not dedicated games players, but most enjoy a game if it is appealing to them. They may only buy a few games per year, but those are often the ones most recommended and of the highest quality. They need information, even advertising, to be able to judge which they want and exclusion of our games coverage would be letting them down.*

NO THANKS

Dear AUI

Reading Mervyn Rosenberg's article 'No Thanks for the Memory' about KindWords has driven me to write a few 'kind words' myself in defence of the programmers of this piece of software. Let me first point out that I am in no way connected with these people, nor am I a user of KindWords.

The article made four major complaints: 1. That KindWords uses too much memory; 2. You need to make a lot of disk swaps (13 to start a spell checker); 3. The program tells you how much memory you have as a percentage, but does not tell you what of; 4. Some memory is 'eaten' when KindWords exits.

To answer these points, does the author really expect to be able to do any serious computing on a 1 drive 1/2 Meg machine? As for disk-swapping, a quick trip into using the CLI will teach you all you want to know about swapping disks! Two swaps are needed just to get a directory of any disk other than the Workbench. With a big program one has to trade memory against disk swaps. You can either have the whole lot in memory, or you can load bits of the software (such as a spell checker) as they are needed to cut down on memory usage at the expense of disk swaps. I agree that 13 swaps seems a little excessive, but my answer is to buy a second disk drive, or preferably a hard disk.

The author's third and fourth points are

more valid. A percentage memory is pretty useless unless you know of what it is a percentage. However, it does appear to serve its purpose, since the number approaches zero as you run out of memory. On the last point, I suggest someone checks whether this is a real problem with KindWords not freeing some memory it has allocated for itself, or whether this is simply that a library that has been used by the program has not been expunged from memory. There is a PD program available to do this.

Dr. Andrew C.R. Martin, Ashtead.

Dear AUI

Mervyn Rosenberg's problems with KindWords are almost entirely due to his own shortcomings!

The handbook quite clearly states: "*KindWords works in 512k of memory. However, because of limited memory space there are some constraints. To fully utilise KindWords, it is recommended you upgrade to 1 MegaByte. If you do so, you will be able to load the dictionary into memory for greater spellchecking speed, and the faster RAM will give you better performance.*" This little excerpt was taken from page 2 of the KindWords handbook.

Sure, it is a big program. It needs to be to support its outstanding features and uniquely flexible environment. Mr. Rosenberg's comments display an ignorance of wordprocessing. Has he ever tried to use the cumbersome, slow, and ludicrously complex packages that pass for purpose built wordprocessors? Try using Locoscript, Mr. Rosenberg, or even the much-hyped WordPerfect system, which is so complex the Civil Service has to send its operators away on week-long courses to learn how to use it.

Jim Curry, Surbiton.

Dear Readers

What Mervyn Rosenberg was trying to point out was that for an advanced machine such as the Amiga software must be its equal.

The excerpt from the manual does highlight the limitations of the program, but it is not an excuse for eating up memory, and if you are a user who uses Workbench to pop in and out of applications during long work sessions then maybe 8 Megs is more appropriate to accommodate KindWords.

The article does not set out to distinguish utilities which run, or do not run on 1/2 meg machines. What it does highlight is the bad memory management of the application. Being users who take com-

puting seriously you may be familiar with using the Workbench. It is designed so that you can move in and out of applications without constantly re-booting. To allow this to happen applications must follow a few simple rules, one of which is to de-allocate any memory it may have previously allocated when exit i.e. to return to the Workbench leaving as much memory as was there previous to usage. KindWords does not do this, even if you run it on a 2 Meg machine. If a user, even with a hard disk, moves in and out of KindWords several times during a work session, they may need 8 Megs+ to allow other applications to run properly.

Disk swapping, as any Amiga User knows, is a serious Amiga fault, but there are many users still without a second drive and KindWords limitations must be highlighted. Second disk drive owners need not worry about particular comments made towards disk swapping, but single drive owners may find them useful.

The program is big, or so it would appear, but there is nothing special about KindWords which quantifies such large usage of memory other than wasteful programming, so those 13 diskswaps could probably have been reduced.

Memory percentages are only as useful as the information they give. Sadly in KindWords case one is left guessing and is unsure if a particular file is small enough to fit.

The worrying aspect of KindWords is how much free memory is available, because the application has a tendency to lock the Amiga if its space is violated. The way KindWords handles lack of memory is more cumbersome than the limitations themselves. Instead of checking for free memory it will happily carry out the given task, until it locks up causing a reboot.

Using PD software to overcome a fault of a commercial package is not the most assuring gesture a potential buyer is faced with.

I am an ex-user of KindWords and can appreciate some of the more refined features it supports. It is the best package for simple use i.e. booting up the Amiga, writing a letter, spellchecking (2 drives), printing out, and switching off, but for serious use I would have to say that it does have serious limitations centered around the missing memory problem. I think Mervyn Rosenberg has made these people aware of limitations which are due to the bad programming techniques, rather than the Amiga's hardware limitations.

P.S. The Civil Service sends its employees to training courses on how to

turn up for work on time, so your observation is not surprising. If you had used WordPerfect you would understand why it is the preferred package amongst PC users.

NOT NEW

Dear AUI

I was torn between upgrading my Amiga 500 into an A1500 expansion box with a Hard Disk or exchanging it for an Amiga 1500.

After talking in some length to a Commodore representative I was told the Amiga 1500 was a brand new machine, ideally suited for games and business use.

On arriving home and unpacking the system I found an Amiga A2000 label on the back of the machine. It would appear that all Commodore have done is re-badged an Amiga 2000, put in a second disk-drive, and called it almost the same name as an expansion unit developed by a third party to ensure confusion. Have they done this because they could not think of casing an A500 in such a professional way.

I have since returned my Amiga 1500/2000, and have purchased an A1500 Expansion system, with which I am very happy.

Lorraine Ferrer, Middlesex.

Dear Lorraine

As reported in our in-depth review of the Amiga 1500 in last issue (January 1991) that is exactly what has happened. The A2000 will probably become an upmarket model, featuring a hard disk, but isn't that what you initially wanted?

The Amiga 1500 is a low cost package version of the A2000. Rather than saying that the A2000 is now bundled with such and such, Commodore have created the Amiga 1500 deal to clash with Checkmate's A1500, but they are different machines. The Checkmate A1500 is the cheaper machine, £200 less expensive. Existing A500 owners will also find it less expensive to upgrade their own A500 into Checkmate's A1500.

However, the Amiga 1500 has its advantages for those willing to pay extra. It comes with 1 Meg of memory, it has the added benefit of an internal expansion bus, and a A500 trade-in is currently being offered. While the Checkmate A1500 is a repackaged A500, the Amiga 1500 is a repackaged A2000. You pays your money and takes your choice. . . .

Amiga Repairs

If something is wrong with your Amiga 500 or C64, who better to turn to than the Commodore National Repair Centre.

For all repairs to your computer, one low payment covers diagnosis, repair (including parts and labour) and delivery back to you.

And, as a special bonus, you can receive a free piece of software if you contact us before January 31st 1991.

The experience and expertise of our technicians ensures that your computer is repaired to a high standard at a low cost. And each repair will be carried out within 12 working days!

To schedule a repair and claim your free software, simply call Michelle or Matthew on 0733 391234.

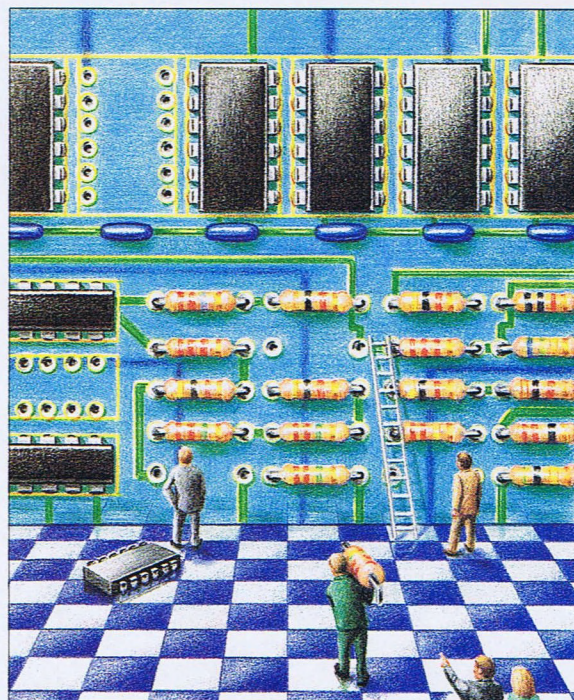
Please be ready to give your name, address, computer type, serial number and the type of fault.

The cost is £49.95 for an Amiga 500 and £39.95 for a C64. Payment can be made by cheque, postal order or credit card.

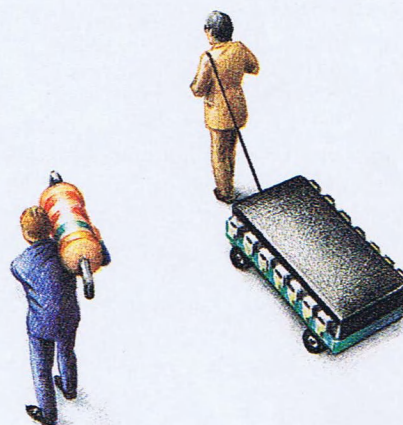
And remember, if you call before January 31st, you can claim a FREE piece of software.

0 7 3 3 3 9 1 2 3 4

FMG House
Newcombe Way, Orton Southgate
Peterborough PE2 0SF



AMIGA REPAIRS

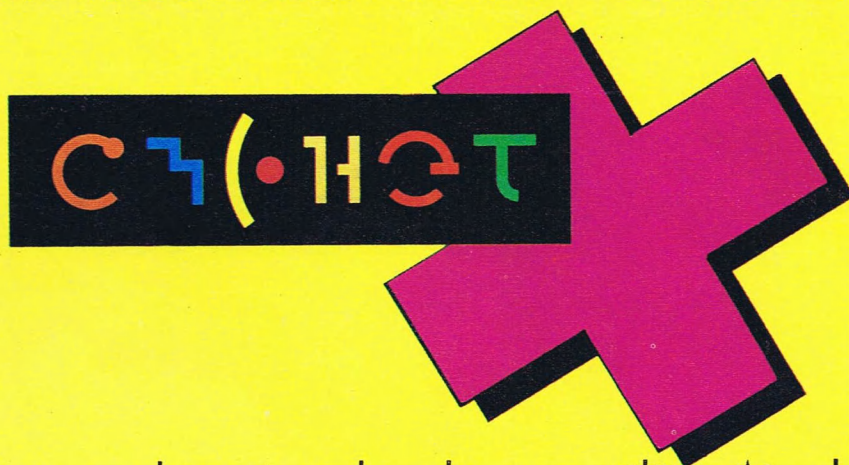


**FREE
SOFTWARE**

**£49.95
COVERS
ANY
REPAIRS**

X-COPY PROFESSIONAL

The essential package for all your BACK-UP needs!
Now includes HARD DISC BACKUP & FILE BACKUP.



*The most comprehensive back up utility *includes floppy disc backup, hard disc backup and file backup. *Also backs up ST, IBM etc discs. *Checks discs for errors. *Optimises data for faster loading. *Fast formatting. *Copies up to 4 discs in 48 seconds. *Full update service available.

X-COPY PROFESSIONAL caters for all your needs, included in the package is a small hardware interface that plugs into the external disc drive port at the rear of the Amiga and your external disc drive (if you have one) plugs into the back of the interface. This allows the DIGITAL BIT IMAGE COPY MODE to use the ADAPTIVE PULSE WIDTH MODULATION routines to backup virtually all known discs.

AVAILABLE NOW ONLY £39.99 PLUS £1.00 POSTAGE AND PACKING

1988 COPYRIGHT ACT. Siren Software neither condones nor authorises the use of its software for the reproduction of copyrighted software. The facilities offered by X-Copy Pro are intended to back up users own software, PD Software & other such programs where permission had been given. It is illegal to make copies of copyrighted material without the permission of the copyright holder.

X-COPY PROFESSIONAL IS THE BEST, GUARANTEED
OUR GUARANTEE:- At time of purchase, if your can find a program that is more powerful than X-COPY PRO we will refund your money.

Ordering X-COPY PROFESSIONAL

Access/Visa orders can be placed by telephoning 061 228 1831. For mail order, fill in the order form and send with a cheque or postal order to:- Siren Software, 84-86 Princess St. Manchester M1 6NG. England.



Name

Address

.....

.....

.....

AMIGA



ST



PC



Actual Digitised
colour screen - shots

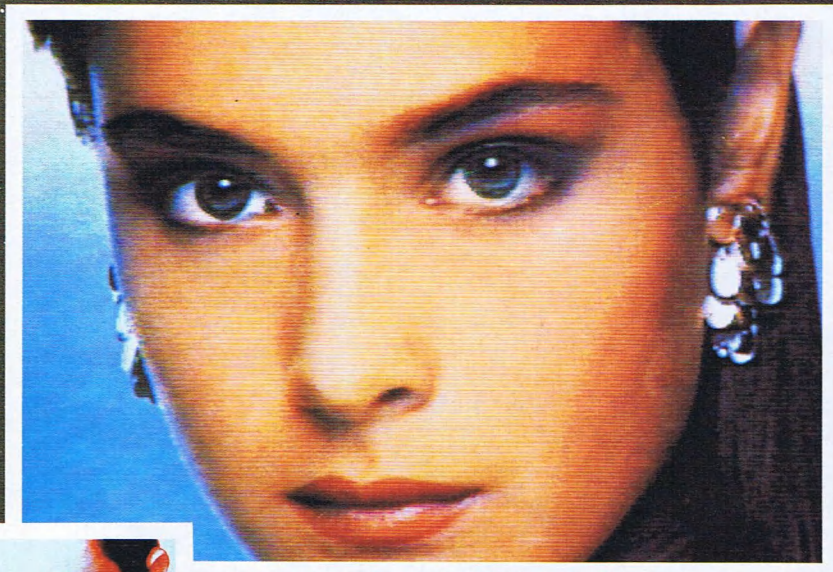
VIDEO COLOUR SPLITTER



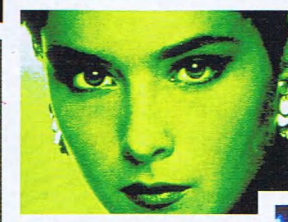
£69.95
Inc Vat

Vidi-RGB is an electronic filter which takes a colour video signal and separates it into the three primary colours (Red, Green and Blue) allowing each to be digitised.

Ideal for use with Vidi-Chrome & Frame Grabber or Digi-View Gold (By Newtek).



All these pictures are **actual unretouched screen-shots** illustrating the sequence of creating a full colour image using Vidi RGB, Vidi-Chrome and Vidi Amiga.



- ★ For use with colour Digitisers replacing conventional Filter sets.
- ★ Our Vidi - Chrome switches Vidi - RGB automatically grabbing full colour pictures in less than one second.
- ★ Digitise full colour images direct from home VCR (must have perfect freeze frame)
- ★ Digitise outstanding colour pictures direct from Canon's new Still Video Camera (an example shown on cover)
- ★ Manual switching for maximum flexibility.
- ★ Fully compatible with Digi - View Gold.

Formo

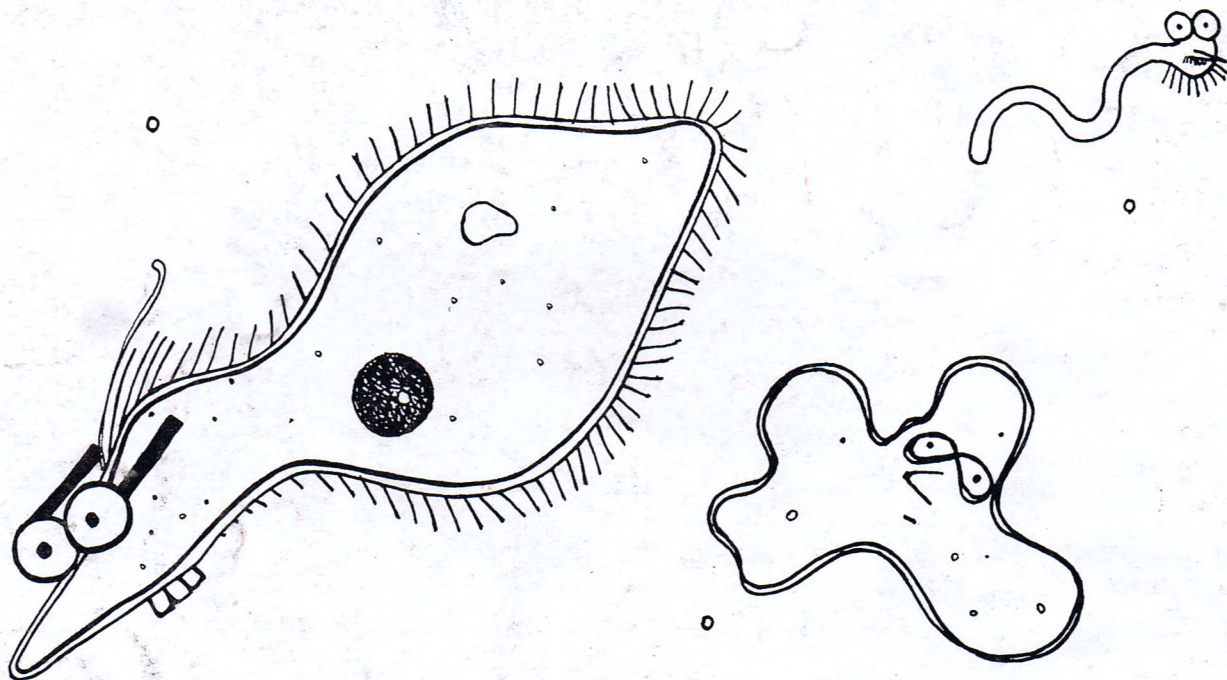
Limited

6 Fairbairn Road,
Kirkton North,
Livingston,
Scotland,
EH54 6TS.

Tel: 0506-414631
Fax: 0506-414634

Now Includes
Digipaint 1

We're not saying everyone should own a Digi-View Gold...



Protozoa, for example, have very little need.

Only one product has captured the imagination of Amiga users around the world: Digi-View Gold. It's the most award winning, best-selling and most used Amiga hardware product of all time. When Amiga owners want to digitize graphics they use Digi-View Gold. Period. In fact, we've probably sold more Digi-Views than any other digitizer on any PC in history.

Here's your chance to bring the world into your Amiga. Simply focus your video camera on any object or picture, and in seconds Digi-View Gold turns it into Amiga graphics that glow with vibrant colour and stunning clarity. Whether you are creating graphics for desktop publishing, presentations, video, or just for fun, Digi-View Gold makes dazzling images perfectly simple.

Digi-View Gold is designed specifically for the Amiga 500 and 2000, and plugs directly into the parallel port. With complete software control of colour saturation, brightness, sharpness, hue, resolution, and palette, advanced image processing is as easy as adjusting the controls on your television.

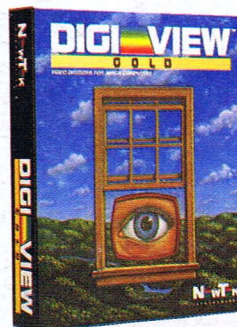
Only Digi-View Gold:

- Has exclusive Dynamic HiRes mode for 4096 colours in HiRes
- Digitizes in all Amiga resolution modes from 320x256 up to 768x580 (full HiRes overscan)

Requires standard gender changer for use with Amiga 1000. Dynamic HiRes requires 2 megs of RAM. Digi-View Gold is a trademark of NewTek, Inc.

- Uses 2 to 4096 colours (including halfbrite)
- Digitizes in 21 bits per pixel (2.1 million colours) for the highest quality images possible
- Has advanced dithering routines that give an apparent 100,000 colours on screen simultaneously
- Comes with an icon driven slideshow program for presentations using both IFF and Dynamic images
- Offers an unprecedented lifetime warranty and toll-free support line

If you want the best pictures possible on your Amiga, then you need the best selling video digitizer of all time: Digi-View Gold.



Only £149.95 Inc. VAT

For a NewTek authorized dealer near you contact HB Marketing Ltd. at 0753 686000.

NewTek

The Amiga Video Digitizer I N C O R P O R A T E D